



EXCLUSIVE CONTRIBUTIONS

Dental Ethics.

By JOSEPH HEAD, M.D., D.D.S., Philadelphia, Pa.

Good intentions, unsupported by good sense are no guarantees of right conduct, and we can frame no code that the unscrupulous may not evade in spirit, and obey in letter.

Until dentists rise to the high plane of that wise sincerity and humanity, to which their calling invites them, prejudice and jealousy within, and distrust without, the profession will continue to exist.

Many a misguided dentist from the kindest motives, will promise a child that there shall be no pain, and then extract a sixth-year molar.

For one operation the little patient has been spared the dread of anticipation, but at a monstrous price.

Faith in the dentist has been destroyed, and from that time forward the child must suffer the constant fear of treachery in addition to the pain actually endured.

As men, and women also, are but children of a larger growth, the same rules of sincere kindness should apply to them.

The mutual relations of dentists are much more difficult to adjust. One or two instances may be cited:

A dental practitioner is absent on his vacation.

Treatment of Patients One of his patients suffering from toothache goes to a neighboring dentist declaring that his mouth has

Other Dentists. quite recently been pronounced in perfect order by the absentee.

The dentist to whom application is now made not alone cures the toothache, but finding badly worn gutta-percha fillings and being a stern advocate of gold, conscientiously advises the patient of his danger, and ends by filling the teeth with gold, thereby inevitably casting odium on his fellow-practitioner, who was perhaps treating the teeth according to his best judgment, and upon approved principles.

Here grave injustice is done, while each man does what he fully believes to be right. In such cases as these, considerable charity is necessary on both sides.

There are certainly other and graver contingencies than gutta-percha fillings, in which a dentist who is applied to, temporarily, is more than justified in working on another man's patient, even at the risk of implying censure of previous work and care.

What if he find splintered roots in an apparently healed gum? Live pulps exposed while the patient has been told that the tooth has abscessed and must not be touched until pain ceases. Must he become a party to fraud, or invent lies to protect his brother practitioner from just censure?

Assuredly not; for when bad work has been done, when gold fillings have been left with defective edges, when decay has not been removed from the margins of a cavity previous to filling, and when the cervical border of a phosphate filling, that extends below the gum has not been properly guarded by amalgam or gutta-percha, it is certainly our duty as professional men to make good the defective work.

Let us remember, however, that no one should assume to be the supreme judge of what is, or what is not, professional.

Let us guard ourselves against our own pet theories lest they assume undue importance, and lead us to condemn all work not in accordance with our own ideas. There is always this danger, but if a conscientious man will allow modesty to temper what he believes to be justice, it will aid him in protecting the professional character of a brother practitioner under any but extraordinary circumstances.

Of course, there are some actions that we should all stigmatize as mean. The following incident was related to me as a good joke:

Being asked to name a specialist in orthodontia by a country practitioner who was in charge of a complicated case of irregularity, the dentist who told this story to me, requested that the patient be sent to himself as the specialist, and not only regulated the teeth, but filled cavities, and retained the patient as his own from that time on.

This seemed especially treacherous, for it is only honorable to advise patients who may come to us voluntarily but unjustly dissatisfied with their own dentists, to return, and that, not in a half-hearted way, but so earnestly that they really will return; but when a patient is sent for consultation by a fellow-practitioner, the confidence implied should make it impossible for us to treat that patient permanently.

And should the patient overcome by any chance success of ours, threaten to leave his own dentist for us, he should be informed in good

faith, that the consulting practitioner is not at liberty to receive him as a patient. Certainly, should application be again made after the lapse of one or two years, there would be no professional bar.

And now a few words on the subject of fees.

Professional

Fees.

It is frequently said that dentists living in the same neighborhood should charge at the same rate. This does not seem to be possible. A dentist is compelled to modify his prices according to the circumstances of his patients; if he does not, he is no true minister to human suffering, but a man who works entirely for his bread and butter.

If such modification is necessary in a single practice, how is it to be avoided in a community?

Then, the young graduate does not give so much value in his hour's work as the experienced practitioner. It is only just that he should charge less.

Let the beginner fill his time as he can. There is abundance of work to be done. Let him increase his fees as his practice grows, and if he be able and conscientious, he will have no cause, as the years advance, to fear cheap competition.

The limit of what a man can successfully demand is the limit of what he is worth, and dental codes cannot raise his standard of excellence. The demand for his services fixes his fees, and if he has not at the expiration of ten years been able to collect about him such a number of loyal patients as shall make him fearless of cut-rate workers, he has only himself to blame.

**Relations with
Dental Dealers.** And now it might be advisable to speak on the relation of the manufacturer of dental supplies and the dentist. With the manufacturer on the one side there is purely a business spirit that most properly seeks to make the most gain irrespective of the welfare, if not at the expense of his competitors. With dentists there is a professional spirit, that should make a purely business point of view impossible. An educated dentist works for the welfare of his patients not primarily for the money which he receives; he frequently gives his services to those who suffer and are needy for a very reduced fee, or for nothing. This side of his life is his greatest pride, and lifts his ideals above the ruthless scramble of the business world. All the best attributes of a minister may be his, as a healthy body which he aids in developing is one of the best factors in the development of a healthy soul. His life should be a life of imolation for the good of his fellow-men, and in this respect his aims are different from those of the business man, who, hemmed in by the system in which he lives, is compelled primarily to look out for himself. Not that busi-

ITEMS OF INTEREST

ness men may not be generous or that many so-called professional men may not be grasping. But the difference between the business and professional point of view is manifest and should not be lightly overlooked. In our business relations with manufacturers they hold us most properly to the strict letter of their rules, and it is quite proper that they should do so. And when they come to us and mingle in our professional meetings they should be required most strictly to conform to the spirit of our rules. It is well for both callings that the manufacturers should give us all the new facts that they can, but drugs and appliances should be considered purely on their scientific merits, and when an agent from a supply house is given permission to address a professional gathering on the advantages of his merchandise, he should be requested to do it with the scientific impartiality of a professional man, not ignoring objections and dwelling only on good points.

The manufacturer and the dentist are equally necessary to each other, but each should respect the relative different standards.

We should recommend a merchandise purely for the scientific advantages that it possesses in helping humanity, and we should not be influenced by the fact that an improvement in a drug or appliance may render valuable machinery useless. Although this is a recognized business risk, the manufacturer cannot be expected to regard this fact so lightly, and, therefore, we must be most cautious lest our indorsements, thoughtlessly given, retard the progress of humanitarian methods and lower our prestige.

Then, again, if dentists are not rich enough to publish their own society reports and must give them for publication to a supply house, let it be purely a matter of business and so understood on both sides. Never let this work of reporting and publishing be accepted as a favor that puts the profession under obligation, for once or twice in the history of dentistry on the plea of past favors, notices of scientific dental gatherings have been used as mediums of special advertisement, thus robbing dentistry of its independence and leaving room for suspicion that the indorsements of dental societies may not be altogether disinterested. This was a mistake on both sides and should never happen again.

The welfare of the supply house is closely connected with the dignity of the profession. What hurts one hurts the other and thus the bonds of amity that have bound them together in the past, should grow stronger until by mutual co-operation the highest good for each is obtained, and the public shall find in both efficient and trusty servants.

Is Prosthetic Dentistry Advancing as It Should?

By A. N. DAVIS, Piqua, O.

In writing this paper I sorrowfully say, that I am an undergraduate and realize that my statements will not have the power of those from the pen of some well known man of the profession, whose statements would be based upon years of experience.

Observation, study and intercourse with some of the best men in dentistry, cause me to feel the needs, of which I write.

In most of the large cities in this country, few men know what it is to have laboratories, and those that have are generally very poorly supplied with all the modern appliances and instruments necessary for the best work; others have only a roll top desk as such, while three-fourths send their work to a mechanical dentist, of whose ability they know little and very seldom see the work until it is finished.

It is generally kept secret from patients, that their work is done by a dentist other than the reputable man whose ability and skill they trusted, and I am sure we, ourselves, would not care to have work in our own mouths made hastily, and with little thought and less ability.

The hard work of Drs. Bonwill, Burchard and Molyneaux, does not seem to be appreciated by the majority, and the Bonwill articulator is more of an ornament, or used only as a straight line articulator, very few understanding its principle and movements in articulation.

In the *Dental Review* of May, '98, there is a paper, the subject of which is, "Prophylaxis in Bridge Work," the writer showing the necessity of such, even in the best bridge skill can produce.

It is almost an impossibility to thoroughly clean all the surfaces of the natural lower molars, and many of the others. Then how much more difficult to keep a bridge clean with its undercuts and irregular spaces?

The aforesaid writer advises the patient to return at the end of six months, to have the bridge thoroughly cleaned with pumice, silk floss, etc.; that it is impossible for him to keep it in a clean condition himself. If a well made and artistic bridge, "which is accomplished by few," will become filthy in six months, it will become filthy in a week, and it would be well to advise the patient to return and have the bridge cleaned three times a day.

It will be surprising to a great many to know that Dr. Bonwill never makes a bridge and never puts on a gold crown, always using his "Bonwill" crown or the English tube tooth made by C. Ash & Son.

When one or more teeth are absent, posterior to the first bicuspid, and enough left to which to clasp, the Bonwill Removable Plate Bridge given and illustrated in "Evans' Artificial Crown and Bridge Work," page 264, is without a doubt the best appliance that can be used.

In case one or two of the incisors are missing, where the removable plate bridge cannot be used on account of clasping, a properly constructed small gold bridge might be used to advantage, as in such a position it could be kept perfectly clean and occlusion could be made perfect.

The saddle back porcelain bridge invented by E. Parmely Brown of New York, given in the "American Text-Book of Prosthetic Dentistry," is the ideal for replacing artificial teeth, but as yet, it has many disadvantages, which, perhaps, will be overcome by time and experience in that class of work.

The profession needs more investigation and study in this work, and a man's ability in operative work may be judged by skill and art displayed in prosthetic work.

I think these statements will be indorsed by a man who has done more for prosthetic dentistry than any man in the world—Dr. W. G. A. Bonwill.

Delicacy of Manipulation.

By W. HALE SIMMONS, D.D.S., Shelbyville, Ill.

I realize well that the task before me of describing the human touch is not an easy one. I shall merely attempt to call attention to the more general points of the subject, and leave the minor to some more skilful writer.

Well can I remember in college "Papa Cushing"—as we called him—using the expression, "delicacy of manipulation." He repeated it so often that every student knew well who was its author; and now as I look back it seems to me that our grand old teacher never said more in fewer words. There is a whole lecture in them, for a good practice and success awaits the young man who possesses a delicate touch.

"Delicacy of manipulation." What is it? How acquired and how lost are among the points we shall consider. A delicate touch is a touch soft and easy, yet firm and steady. It is an intelligent touch which speaks louder than words, and says to the patient in the chair, "these hands understand their work." It says to the frightened, nervous woman, "you have no reason to fear." It dries the tears of the nervous child; brings relief to old and young, and gives joy both to the sufferer and to the possessor.

We often wonder why Dr. So and So is always busy. The mystery would soon be solved, if we were to have him handle our mouth for a few minutes.

We hardly touch a patient when at once he forms some opinion of our skill as an operator. Those are mistaken who think that nimble fingers with loose joints are the ones most apt to produce this delicate touch. The fingers should not fly like so many sticks hung on hinges, but should have a rapid, easy and graceful action. This valuable motion and touch can only be acquired by working with the head as well as with the hands. The operator who thinks of a dozen things aside from his operation, will never acquire the skill he ought to have. The whole mind must be concentrated upon the operation and should work more actively than the fingers, planning ahead what the fingers shall do.

Again, the delicate, careful operator must put **The Best Dentist** himself in the place of the patient: he must feel a **Must be** sympathy for him—a true sympathy which comes **Sympathetic.** from the heart. That operator who can, without a feeling of sympathy, cause the perspiration and tears to course down a patient's face, will never acquire a delicate touch. I believe it is safe to say that he who handles his patient with the most ability is a man with a big heart. If a patient presents himself to us for work, and we feel that we cannot enter into sympathy with him, we should refer him to some other dentist who perhaps can. Did you ever operate upon a person with a feeling all the while that you did not care how much you hurt him, and perhaps you could not tell why you had such a feeling? If so you have injured yourself as an operator; disgusted the patient, and suffered a loss in every particular.

Having acquired a delicate touch, the question arises—what would cause us to lose this ability when once acquired? Drinking, smoking, chewing, late hours, dissipating in any way, even the drinking of coffee with some, will effect their operating. Anything that affects the nervous system, and blunts the keener sensibilities will weaken the delicate operator. May the day speedily come when our colleges will refuse to graduate men who are already dissipated. Though perhaps otherwise well qualified, they will never be anything but a disgrace to themselves, their families, and their college. If our colleges would turn out each year first-class operators, they must compel a young man as soon as he is found to be immoral, either to reform or leave the college.

But before we say much to the students, would it not be well to take some of the professors aside, and request that when they are giving examinations they do not light a cigar, put their feet on the top of the

desk, and puff smoke at the sign on the wall which reads: "No smoking allowed here."

Our railroads require that even its brakemen on the freight trains be temperate, sober men. Is it not high time that the dentist, who is to take the lives of the public in his hands, be equally as well equipped as the men who handle our merchandise?

Our colleges have made great strides in fitting us for our profession, of which we all feel proud; but for all that I presume many of us feel, as we watch a skilled artist, engraver or sculptor in his line of manipulative ability, that we are as yet bunglers at our work.

Is not this a field worth our study?

Dentists Are Needed in the Army.

By W. L. WHIPPLE, M.D., D.D.S., St. Louis, Mo.

Referring to Dr. Lindsay's article in November ITEMS OF INTEREST, I presume the bill now before Congress on this subject contemplates the appointment of dentists to the Navy as well as the Army. Dr. Lindsay concedes they are necessary to the Navy and he is most assuredly right, and they are also just as necessary to the Army.

Of what practical benefit is it to the average private soldier who, as I understand it, receives a salary of \$13.00 to \$16.00 per month, that "with the present annual output of dentists, there can be no Army post in the civilized world that has not a dentist within a reasonable distance." I doubt if the Doctor is well informed on this point, for I know of some Army posts that have no dentist within a reasonable distance.

Again, with such meagre salaries, how many privates could afford to give their teeth even reasonable attention? I disagree with the statement that the teeth of the average regular are exceptionally good. The gentleman probably assumes that they have lived since childhood the same "hardy, regular life," having as food only the kind that will serve to strengthen the muscles and constitution, for he would certainly not advance the theory that this hard, regular life begun between eighteen and thirty years of age would restore tissue previously lost?

I have been called upon to treat several returned volunteers who spent the summer at Chickamauga, whose teeth were in extremely bad condition, and who had suffered greatly during their camp life with odontalgia. When asked what was done for their relief, they replied "Nothing! Any one who had trouble with their teeth went to the 'Doctor' who

pulled them out." One man stated: "A member of my company had toothache and went to have the tooth extracted and the Doctor nearly killed him, so I preferred to suffer rather than submit to such treatment."

I think most of us, as dentists, realize the lack of knowledge and appreciation the average medical man has of the teeth, and yet Dr. Lindsay advocates leaving our soldier boys—whom he should feel called upon to protect as a father—to the tender mercies of the post surgeon, or to the possibility that there may be a dentist within reasonable distance and the boy have the money to remunerate him for services rendered.

In conversation with a physician, who also spent the summer at Chickamauga, I inquired if they met with many dental troubles among the soldiers, and what was done for them. He replied, "Yes, we had a great many such cases, and all we could do was to pull the teeth out."

I feel sure if it is consistent for the surgeons of the Army to do so, they would be glad to sign a petition to Congress that the bill appointing dentists to the Army be passed, and if there is a committee attending to this bill, I hope the suggestions will be considered.

With such treatment as recorded above, how can the United States Government hope to have a healthy and victorious Army?

As to Dr. Lindsay's regret that all dental graduates are not oral surgeons, I think that should dentists be appointed to the Army, they will have all they can attend to in practicing dentistry proper, and they should leave oral surgery to the general surgeon; otherwise I suspect there would be a controversy between them.

Dentists are necessary to the Army as dentists, and not as oral surgeons.

Successful Prosthesis After Operation on the Maxillæ.

By DR. SAMUEL HESS, New York, N. Y.

Walter P., aged four years.

Case 1. On March 26, 1898, the left side of the inferior maxilla, from the symphysis to the condyloid process, was entirely removed, as a result of a necrotic condition. The operation occurred at eleven o'clock a. m., and at four p. m. the attending surgeon, Dr. M. Kakels, called me in to examine the case. By this time the remaining half of the lower jaw had begun to move backwards and sideways, and to avoid this condition and restore the contour of the face, I was to construct a suitable appliance.

After removing four loose lower incisors and some spiculae of bone, which were still adherent, I took an impression in modelling compound of both upper and lower jaws. The models of both jaws were then placed on an articulator and the normal articulation thus mechanically re-established. The ordinary interdental splint was then constructed, an aperture being left on the side from which the jaw bone had been removed for the introduction of nutriment.

Holes were drilled opposite the teeth on both upper and lower sides of the splint, which, after insertion, was ligated to the upper teeth. The remaining half of the lower jaw was then forced into place and also ligated, and bandages were applied tightly around the head.

The periosteum had been left intact in the hope of the formation of new bone tissue. After several removals, cleansings and replacements of the splint, it was found after a period of about three months that new bone tissue had formed, thus naturally fixing the articulation and restoring the normal contour of the face. The child was brought to my office about six weeks ago, and from outward appearance no deformity was evident, though the splint had been dispensed with entirely.

Mr. B., aged sixty years.

Case 2. On October 11, 1898, I was called by Prof. Lange to his private hospital to examine this case. Patient had been suffering from carcinoma. An operation had been performed involving the removal of the entire superior maxilla. This had occurred two weeks previous to my being consulted.

The patient could not swallow properly, and articulated so poorly that it was almost impossible for him to make known his wants. I was requested to construct an appliance to overcome this difficulty, and to close the cavity resulting from the operation.

An examination of the mouth disclosed the vomer and the antrum cavities. The openings of the eustachian tubes were also plainly visible. A projecting portion of the soft palate was left posteriorly, and granular tissue was evident on all sides. It was impossible to introduce an impression cup into the mouth, so modelling compound was thoroughly softened, manipulated with the fingers, and forced into the vault of the mouth. After becoming hardened it was removed and a plaster model made.

A wax base plate made to conform to the model was fitted, reshaped and trimmed according to the condition of the mouth. It was flasked as usual, packed with soft rubber and vulcanized for three hours. It was taken from the flask in a pliable state, and upon insertion was found to close the cavity entirely. After insertion the patient was enabled to

articulate clearly; the articulation being aided by a slight vibratory movement of the thin, soft rubber.

After thorough healing of the parts, an artificial denture is to be constructed for both upper and lower jaws.

Neuralgia Caused by Malposed Molar.

By DR. F. O. KIDD, Fall River, Mass.

A woman, age forty years, who for the past few years has suffered at times the most excruciating neuralgic pains over the face, neck and shoulders, and with very severe earache, was sent to me for examination and treatment by a specialist on diseases of the ear and nose, after exhausting all his knowledge in treatment of the case.



He performed a paracentesis, and quite a quantity of fluid came out which gave only temporary relief, lasting a month or two.

Upon examination of the case, I found the gum surrounding the superior right second molar quite badly inflamed, and the tooth very sore to the touch. I came to the conclusion that the trouble was probably caused by the malposition of the third molar, which I decided to remove, and which I did with excellent success, although I found it a very difficult and bloody operation lasting about twenty minutes.

Result, a complete relief from all neuralgic pains and ear troubles.

Roentgen Rays in Daily Practice.

By DR. C. EDMUND KEILLS, JR., D.D.S., New Orleans.

A miss of fourteen presented herself with the condition obtaining upon the left lower arch as shown in Fig. 1.

From the history of the patient, gleaned from herself and parents, it was impossible to decide whether the missing tooth had duly erupted and had been extracted, or if it was still unerupted.



FIG. 1.

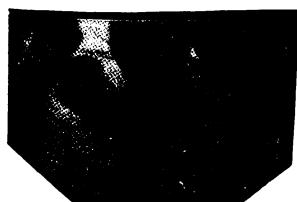


FIG. 2.

While in this case there was no absolute necessity for knowing whether the tooth in question had been extracted or not, still it was decidedly advisable to do so; therefore, a skiagraph was taken to ascertain that fact, with the result as shown in Fig. 2.

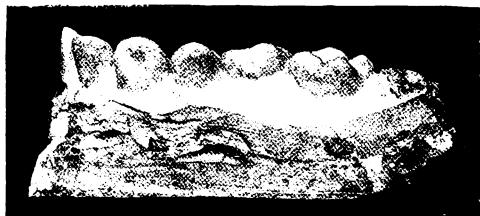


FIG. 3.



FIG. 4.

From the discovery of the presence of the second bicuspid thus obtained, the advisability of the extraction of the first bicuspid was clearly demonstrated. A few weeks after this tooth was removed, the second erupted into its normal position in the arch.

Fig. 3 represents the cast taken from the left upper arch of a miss of fourteen.

Here is shown the second temporary molar still in place.

A skiagraph was taken and the result obtained shown in Fig. 4, in which the unerupted second bicuspid is clearly shown above the tem-

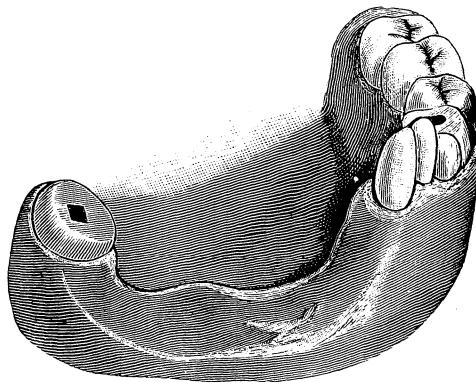
porary tooth. The latter was extracted, whereupon the permanent tooth at once erupted.

This case is interesting in respect to the fact that this picture was taken in forty seconds.

Removable Splint.

By CHAS. L. VAN FOSSEN, D.D.S., Kansas City, Mo.

As a result of a pistol shot, the ball entering just anterior to the mental foramen, and continuing in almost a direct line with the body of the inferior maxillary, seemingly cleaving the process and maxillary apart, from the right lateral incisor to the second bicuspid and so mashing

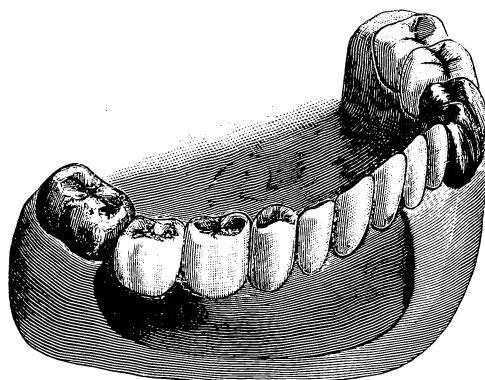


it as to necessitate its removal, the contiguous parts surrounding the first and second molars were so inflamed from the shock and laceration as to compel extraction. The process surrounding these teeth while somewhat loosened, still remaining intact, was preserved. The fracture set and healing completed, the patient presented himself to me for the purpose of having the lost parts restored.

The case seemed quite a problem for the following reasons:

Plate work seemed impracticable on account of the small segment of bone at the point of fracture, being so weak that any force exerted on it

would have a tendency to cause a new break, and because of the further fact that the muscular attachment had, seemingly, completely obliterated all trace of gum tissue at this point, and in healing had become so rigid that any mechanical piece must be held as stationary as possible to prevent these rigid muscles from constantly raising the piece in opening and closing the jaws. The teeth on the left side of the mouth were all intact, in a perfect condition and very close together making it impossible to break the strain of the piece except by filling a space and clasping, which method did not appeal to me. Stationary bridge work was considered until the question of filling the space to the gum line was thought of. The loss of tissue was so great that to simply replace the teeth for the purpose of mastication would have been very unsatisfactory, and to completely fill the space by stationary work would have made a piece



so very uncleanly as to have been unbearable. The muscles on this side of the mouth were so rigid as to interfere greatly with the introduction of a tooth brush, even before the artificial piece was inserted. For these and other reasons I decided on a form of combination work. Having preserved the third molar on the right side, I had a basis of attachment, and proceeded to destroy the pulp and prepare for a double telescope crown with a heavy square pin set in a perfectly fitting sheath. The tooth was covered with a platinum cap tapered gradually toward the occlusal surface, with a flat top and the pin sheath soldered in the center.

The telescope cap was made of 22k gold; cap moulded and the pin extended through the solid cap and soldered after brazing. A heavy lug was next soldered to the outer or telescope cap for attachment to the rubber piece. The next move was the consideration of the anchor for the anterior end. In order to break the strain as much as possible I decided

to use the left cuspid and bicuspid as a double anchor for this purpose. The impracticability of using the incisors is evident. Their small roots and proximity to the vast hole would have invited their removal in a very short time. I selected the above teeth on account of the large strong heavy root of the cuspid and the masticatory surface of the bicuspid. Destroying the pulps in both of these teeth I proceeded to manage them in the same manner as described with the third molar attachment, using the double telescope crowns. Soldered together and soldered to a plate of very heavy gold which had been swaged to fit behind the incisors and leave a heavy lug for anterior attachment into the rubber.

An impression was taken now with caps all in position, the inner caps having been cemented to their place; the telescope crowns came away in the impression and the piece was completed as an ordinary rubber case. The piece required some little trimming to relieve the pressure on the rigid muscles at the point of fracture, but in a few days was very bearable, and in a short time was doing perfect work. This piece has now been worn six years, and to meet the gentleman one could not detect from his appearance or speech the fact that he had been the unfortunate victim of the loss of almost half a jaw.





SOCIETY PAPERS

Evolution of Dental Materia Medica.

By WILLIAM H. TRUEMAN, D.D.S., Philadelphia, Pa.

Read before the New Jersey State Dental Society, Asbury Park, N. J., July, 1898.

Whether considered in its relation to general medical practice, or in its relation to the many specialties concerned in preserving the normal, or in restoring morbid or unnatural conditions of the human economy, scientifically considered, *materia medica*, practically, has been by far the least satisfactory, and the least progressive of any department of the healing art. The chemistry, the manufacturing, the commercial aspects of *materia medica*, the weeding out of the inert, and the addition of more potent remedies; and in some respects, the better understanding of the part remedial agents play, that which can, and that which cannot be expected of them, has kept fully abreast of the general advance of human knowledge, and has utilized to its utmost, the resources which its marvellous progress has constantly provided; but, in its practical application, of the why and the wherefore, how little do we know more than did the first of our progenitors who learned to immerse an inflamed member in the cool waters of a mountain stream, because by so doing it felt better and sooner healed.

It is true, that repeated experiences of past ages have been utilized to lay down a series of principles. We have divided the material at command into classes, associating together those, the more pronounced effects of which are strikingly similar. We have learned, in a general way, that this or that agent antagonizes this or that abnormal condition. We have also learned that certain parts of the economy respond to the presence of certain agents. We have also learned that certain agents when present in the economy at the same time, so antagonize each other as to become inert, or, at times, to produce jointly a different effect from that produced by the one or the other alone.

All this, or the most of it, has come to us, not as deductions from well recognized laws, but rather as the results of repeated empirical trials. The everyday application of even the few items which we have been pleased to consider basal, is accompanied with constant disappointments and surprises, so much so, that every physician, and every dentist, as his experience increases, is compelled to make his own selection of appropriate remedies, form his own estimate of their scope and value with so little regard to rules or science that between practitioners of either art, working side by side, we frequently see radical and violent differences, and with it all, an equally gratifying success.

For the most part, the way in which drugs produce their characteristic effects; why this expels the contents of the alimentary tract through the annus, and that through the mouth; why one controls the action of the heart, and another expends its energy exclusively upon some other organ; why one excites and another calms, are today as profound mysteries as they ever were. In a few instances we may, in a measure, ascribe the results to mechanical or chemical energy, but, for the most part, chemical affinity or known mechanical laws utterly fail to explain the phenomena. All that we know concerning this has been learned by comparing and tabulating repeated experiences; and at best, in applying the science of *materia medica* to everyday work, we are safe only in suggesting *probable* effects.

Notwithstanding all our nineteenth century intelligence, the whimsical superstitions of the past are not unfrequently successfully pitted against the science of the present, and the galvanic ring, and inert potion of the quack, bear off the victor's palm.

The medical and corelated professions have failed to develop among the masses of their members the faculty of carefully observing and reducing to a science the behavior of remedial agents to the same useful fulness and accuracy as they have that of the various ills they are called upon to combat; indeed, when we consider how much the effects of medicines are controlled by the patient, and the thousand and one things that the administrator can neither see, feel, nor appreciate, which greatly modify the action of remedies, this is not surprising; nor yet, that a majority of practitioners having found tact and judgment such potent allies, are willing to give science, the less conspicuous aid, a correspondingly less consideration. It is but just, however, in thus giving to the science of remedies the laggard's place, to bear in mind that it is, and must ever be, a follower; which is indeed its natural place. We must first locate the disorder and ascertain its character before we seek its remedy. Looking backward, we see how, now and again, a clearer knowledge of diseases, of their location, and of the tissues involved, has been quickly

followed by radical revolutions in the treatment and remedies used. And again, as before hinted, the progressive practitioner, in the use of remedies, is continually hampered by the prejudices, whims, and fancies of the patient.

All these matters must be considered in attempting to follow the evolution of *materia medica*, either as a whole, or in connection with any specialty of the healing art. It may, perhaps, be more just to say, that the science of *materia medica* sooner reaches its ultimate than do most other sciences, and that its assumed facts are less easily proved or disproved. Pathological changes, many of them, leave in their track the story of their rise and progress as accurately recorded, and as easily read, as that which the geologist unfolds; but, who can understandingly read the vagaries of a human mind? Who can say that the recovery is directly due to the remedy; or that some other drug would have done better? How can we prove that our remedy was necessary, or that recovery was possible? Indeed, for the most part, the remedial action of pills and powders, incantations and charms, while at times equally efficient, equally resist any attempt at logical explanation.

Our specialty being limited to a small part of
Materia Medica in Dentistry. the human economy, having but few pathological conditions to combat, and being comparatively free from mental interference on the part of the patient,

has, perhaps, made a more logical use of the remedies at its disposal. We have been hampered, however, especially in the early part of our history, by an imperfect knowledge of the structure and anatomical relations, and of the local diseases and the pathological affinities of the teeth and their surroundings. We have been so overshadowed by general medicine, with its prejudices and time-honored traditions, that progress was, and has been, even in later years, very slow. In a general way, the evolution of *materia medica*, in general medicine and in dental practice, has kept pace with the advances of the preparatory sciences, anatomy and pathology. Looking backward again, comparing the practice of today with that of a few centuries ago, noting especially how greatly human suffering has been lessened and made more tolerable, we are apt to exclaim, "What a marvellous change!" And so it is; but, if we trace its progress step by step, while we may note at wide intervals, now and again, a seeming revolution caused by some brilliant discovery, *real solid progress has been extremely slow*. In our own specialty, it is hard to realize that it required nearly three-quarters of a century, for porcelain artificial teeth to supplant their foul smelling and repulsive predecessors; or that the present comparative success of pulp treatment has been reached within recent years only, after more than a century's patient and well

directed experiments; or that the cause of dental caries for ages eluded the diligent research of so many able investigators, to be fully explained but a few months ago; and yet these statements are quite true.

The early history of dental *materia medica* has not yet been unravelled; we know enough, however, to feel assured that disorders of the teeth and their appropriate remedies were studied in remote ages, and that the dental science of today originated in the long forgotten past. As far back as we can trace the records, we find earlier writers referred to as authorities, and their assertions challenged or accepted. Until about the middle of the sixteenth century, we have no record of any work upon the teeth by a dental writer; all we find is embodied in medical works, by medical writers, who were ambitious to include in some general system the whole catalogue of human ills. If we judge these works by that which has been done with the same object in view by much more recent writers, these dental injections must be received with much caution, and only recognized as an *exposé* of the dental science of their day, in the absence of better information. Indeed, as a rule, they bear unmistakably the impress of writers lacking special study and practical experience.

In tracing the evolution of dental *materia medica*, we will first endeavor to ascertain the progress it had made at the time when the oldest available record was written, and propose to take as this starting point as a mere matter of convenience—being more familiar with it than with other of perhaps equal merit, the chapter on toothache, in Vigo's *Surgery*.*

Giovanni da Vigo, the writer of this book, was a distinguished Italian physician, a native of Genoa, whose ability attracted the attention of Pope Julius the Second, who called him to Rome to become his first surgeon. In 1514, he published the work in question, a *System of Anatomy, Medicine and Surgery*, which at once, on its merit, was widely accepted as a standard text-book, and was honored by repeated editions in various languages. We accept this chapter on toothache, merely, as an exposition of the dental science of its day from a medical writer's standpoint. It is simply a recital of matters gleaned from previous medical works, and bears but little evidence in matters relating to the teeth, and their surroundings, of originality or of practical dental knowledge on the part of the writer.

So closely associated are the sciences of pathology and *materia medica*, that we cannot intelligently discuss remedial agents in this connection, without considering, to some extent, pathological conditions

* These quotations and references are taken from an English translation published at London, 1550.

also; indeed, until we first know the accepted ideas concerning diseases of the teeth and of the gums current early in the sixteenth century, we cannot understand the purpose of the remedies proposed. I purpose, therefore, at some length, to give the main points of this exposé of dental science as it was nearly four centuries ago.

**Vigo
on Toothache,
1514.**

Regarding the general anatomy of the teeth and the surrounding parts, this writer had a fairly accurate knowledge, but of their minute anatomy he knew absolutely nothing. He begins the chapter on toothache by saying: "The teethe are wont to be vexed through a reumatyke matter distillinge fro ye brayne, and through the fauet of the stomake, when under sondrye passions, but seyng that the teethe serve for comelynes, for chewyng of meate and for pronunciation; therefore they must be cured wyth all dilligence." Quoting from an earlier writer, he names six diseases of the teeth, "pain, corrosion, congelation, dormitation, filthiness, and looseness." Pain seems not to have been considered a symptom of a disordered condition, but the disorder itself; and a vague idea was entertained that this pain was in some way due to an inflammation of the tooth substance, and was more severe than other pains, because on account of the hardness of the teeth this inflammation was not relieved by suppuration as in the soft tissues. He states, still quoting from older writers, "The teethe have no feeling in themselves, but by reason of nerves which come from the third pair of nerves of the brain to their roots and to the gums; this is evident, for when one little piece of the tooth is broken the man is not pained. The pain comes by an evil complexion of the nerve, or a hot or cold aposteme (abscess), wherefore, sometimes the pain is aswaged when the tooth is pulled up, and the matter which caused the pain is allowed to escape." This manoeuvre, it is added, also permits the medicine to enter more easily and ease the painful place. When all else fails, on the authority of Galen, we are advised to pull the tooth out by the roots.

Corrosion, we readily recognize as caries; and he recommends that the corrosion be removed with trephines, files and other convenient instruments, the cavity to be then filled with leaves of gold to preserve the place from putrefaction.

Congelation, he tells us, "chanceth to the teeth of outward or inward things. Of outward, when a man eateth sour things, of inward, when lower vapors ascend from the stomach. Also there is yellow filth sticking to the teeth and the roots thereof, which comes of gross vapors ascending from the stomach, and which may be removed by rubbing with convenient instruments." He recommends the following powder for cleansing the teeth, preserving the gums, making the teeth white, and

remedying the stinking of the mouth: "℞. Rock Alum, burnt, 2 dr.; sarcocolla (Persian gum), terra figillata (potter's clay), mitabola citrine (lemon peel), of each 1 dr., mingle them together, and make a powder and rub the teeth therewith, in the morning fasting, twice a week."

Dormititation is a disease of the teeth referred to by the old writers which I am unable to recognize. This writer says it is caused by holding cold things, or stupefying medicines in the mouth, and recommends for its removal the following, to be held in the mouth warm. "℞. Odoriferous wine, half a pound; aqua vita, 1 oz.; rosemary, sage, and camomile, of each a scruple; sandrake, 1 dr. Boil these together until one third part is consumed, then strain them, and use as directed. Aqua vita, applied to the teeth with cotton, takes away the dormititation and congelation." Both these expressions originated with the ancient writers, and are found repeated in medico-dental works like this. In none have I so far found a description sufficiently exact to identify them with conditions met with in practice.

Looseness of the teeth, he tells us, arises from a looseness of the gums, or through debility or weakness of the roots, or of the parts which bind the teeth, caused by rheums and humors descending from the brain, sometimes by corrupt vapors mounting from the stomach. For the cure of this disorder he recommends the following medicine: "℞. Syrup liciti, 10 dr.; rock alum, 3 dr.; water of plantain, 1½ dr.; wine of pomegranate, 3 dr.; honey of rose, 6 dr.; Persian gum, ½ dr.; vinegar of squills, ½ oz.; leaves of wild olives somewhat bruised, half a handful. These, except the liciti and honey of rose, are to be sodden together, then strained, then sethed again with the liciti and honey of rose until two parts out of three are consumed." The gums are to be rubbed with this composition, "for it fastens the teeth, and removes the putrefaction, and comforts the nerves which come to the roots of the teeth." If a more desicative medicine be required, he recommends the unguentum Egyptianum of Avicenne, "which hath virtue to remove the evil and to conserve the good." We have in these two medicines the combination of astringent and sedative, the last partaking somewhat of a caustic. We would today, in a like condition, with better prepared and more active agents, still use astringent and sedative remedies, resorting to caustics if more potent means were required. He then goes on to say: "Besides the six causes before named, pain of the teeth may come of worms, which are engendered in the hollowness of the same, or by abscesses of the gums."

He next speaks of "hot and cold apostemes." I gather from him and other writers of that period, that by these expressions they referred to abscesses accompanied by inflammation, or periosteal irritation, and others where the inflammation was not so pronounced; and in this con-

nection they also included exposed pulps. The science, as expounded by medical writers, had not yet reached the point when these several conditions were recognized as separate and distinct. A hot pain was one which was eased by cold applications, a cold pain one which ceased on hot applications being made. For the relief of these conditions resort was had to hot or cold applications, to purging, to local medication, and to diet. In addition, cleanliness of the mouth and teeth is urged, and that the patient's wine should be of good odor, and mingled with warm water. On the authority of Mesue, as a farther measure of relief, if the matter is hot, blood letting, a blister on the shoulder or nape of the neck, scarrification of the gums and application of blood-suckers (leeches), are recommended. Nearly all the remedies are more or less astringent in character. Vinegar was a stand by, in dental medicine, from its supposed ability to penetrate the hard tissues of the teeth, and carry to the seat of pain the virtues of the various remedies combined with it. A favorite remedy ascribed to Avercenne, was vinegar in which an adder's skin had been steeped, or a decoction of a frog sodden in vinegar and water. Mesue recommends camphor, coriander seed, the juice of nightshade, and sumach, in the relief of tooth pain. At the time this book was written, the medical profession was in close bondage to the old masters, so far as its text books were concerned. The light was beginning to break, but personal experience was apologetically expressed, and opposed very cautiously indeed to the accepted tradition of the past.

He gives a number of remedies for real or fancied diseases of the teeth; most of them are vegetable decoctions and stews, containing a large number of ingredients, which we of today consider of but little value. Gum camphor, alum, acetic acid, alcohol, and a few aromatics, are all that have retained their place in modern dental *materia medica*. He closes the chapter with a plea for more earnest attention to disorders of the teeth, gums, and associate parts; and suggests that those surgeons who are so ready to recommend their patient to the barbers, and wandering vagabond tooth drawers, would do well to see these worthies at their work. Whether this remark is intended to be a reflection upon the surgeons, or the tooth drawers, is not clear.

Works of Early Writers. Dental bibliography records the publication of a number of works during the sixteenth century, which, judging by the titles, were intended for lay readers. For example, one by Gualther Hermann Ryff, Wurzburg, 1548, entitled (translating the title from German into English), "A useful account of how one may keep the eyes healthy and the eyesight sharp; and preserve the teeth fresh, solid, and healthy." Others again, treated upon disorders of the eyes, ears, and teeth; while

a few were exclusively upon the teeth. They were the beginning of popular dental literature. I have seen but two of them, the first in German, dated 1532, compiled by an unknown writer; the second, the first denial publication in the French language, by Urbain Hemard, Lyons, 1582, entitled, as translated, "Researches on the true anatomy of the teeth, their nature and properties, in which it is shown that they are more than other bones; also, how to cure the diseases to which they are subject from our infancy to extreme old age, and the remedies proper for the one or the other age. Afterwards upon the rules necessary to conserve their health. Compiled from the writings of Hypocrates, Galen, and Aristotle, confirmed by the more important ancient and modern authors."

Of this writer, so far, I have been unable to gather any further information than is contained in the title page of his book. He was the first of a long line of learned and talented French writers and investigators, to whom we as dentists are indebted for our early professional literature. Long before anything concerning our specialty had been written in the English language of the slightest scientific value, these writers had fully covered the whole field of that which we now know as dental and oral science. Their contributions laid the foundation of our professional literature. The more they are known, the more we will admire their professional spirit, and appreciate their scientific and practical value.

It was no doubt a mere chance, but, how very fitting that this book, occupying the position it does in our professional literature, should be as it is, a mere resumé of the dental work of ancient standard medical writers, industriously collected and well arranged. He thus gives to his countrymen interested in dental science, a very fair presentment of the accepted theories and practice of the art on record at the time in which he wrote, and thus furnished them a starting point from which to begin their own original work. He may have corrected, somewhat, the anatomy of the teeth and their surroundings, but otherwise, he merely repeats the opinions and suggestions of accepted authorities, following in this respect a custom long venerated by medical writers of his day.

Martin,
Dental Remedies,
1679. A little work by B. Martin, dated Paris, 1679, entitled "Dissertation sur les Dents," evidences a marked advance. The writer is not the mere mouth-piece of long dead masters, but has given us an original work, and an excellent one so far as it goes.

I note especially his remarks upon the diseases of the teeth and gums, and the various remedies proposed, are far more in accord with modern ideas, more practical and to the point, than any previous writer whose works I have examined. One is impressed on reading his work, that he

knew whereof he wrote, and was not dependent upon others for the information given.

For removing stains and discolorations from the teeth, he recommends to first use a steel instrument with a point shaped somewhat like a lancet, following this with wine, which has been brought to a boil, and then a little salt and alum added. This is to be applied by rubbing the teeth time and again with the corner of a handkerchief saturated with it. In other cases, he recommends for the same purpose, a solution of rock salt and sal ammoniac of each half a livre, and rock alum four ounces; to be pulverized, placed in a glass albumic, and a little water added. This he says, whitens the teeth marvelously. At times he adds a quart of water to this to prevent its roughening the teeth (page 77). He refers to and condemns the habit some persons have of using for the purpose of whitening their teeth, spirits of salts (hydrochloric acid), vitriol (sulfuric acid) or aqua fortis (nitric acid), stating that they not only calcine and corrode the teeth, but undermine and destroy the gums, and that their frequent use gives to the teeth a permanent yellow color. He likewise condemns cosmetics containing sublimate (mercury bichlorid), or arsenic, as being injurious to the teeth (page 60). As a dentifrice, or as the old writers more frequently term it, "an opiate for the teeth" (the word opiate in this connection meaning simply a medicine, or a medicinal preparation, without reference to its containing opium as one of its constituents), he recommends the following: "Gum lac, one ounce; cinnamon bark, feverfew root, of each six drams; pulverize these separately, and pass through a fine sieve; then add one ounce of dragon's blood finely pulverized, the same of red sandel, and of prepared red coral the weight of two écus (an obsolete French coin). After all these powders have been well mixed, place them in a marble mortar with sufficient julep of roses to make a soft paste. This is packed into crockery-ware pots and so preserved for use. Those who prefer may perfume it with a few grains of musk or ambergris." This, he says, is admirable for cleansing and whitening the teeth and strengthening the gums, and adds, that he has found it more useful for this purpose than any other preparation (page 72).

To arrest hemorrhage after tooth extraction, he recommends that the mouth be first washed or rinsed with wine that has been heated to the boiling point with a little rosemary and alum, to which may be added, if desired, a little myrrh or a few sprigs of myrtle. After this has been used, he charges a quill, in roundness about the size of a pea, with calcined Roman vitriol (probably sulfate of iron), and applies this to the gum, to the socket from which the tooth has been drawn. He states that this should not be used unless absolutely necessary, as it is a caustic. He has sometimes used the powder of burned sponge, or the fur of a

hare with good effect, in arresting hemorrhage (page 39). In a condition as described closely resembling pyorrhea, he recommends oil of vitriol or sulfuric acid, to break down the carious bone, and to separate it from the healthy. He also, for similar conditions, advises the use of nitrate of silver—then known as pierre infernase (page 132).

In estimating the value of this little book as an exponent of our science, we must remember that it is not, and was not intended to be a text-book. It was written mainly for the information of the public, and treats only of so much of our art as would usefully serve this purpose. In every way it is a marked advance; the writer evidences a clearer knowledge of the structure and surroundings of the teeth; he has broken away, completely, from the old masters, and speaks from his own experience. His remedial agents, the few that are given, are well chosen, and in the hands of laymen might be today used with advantage and with perhaps less risk than many more potent.

Fauchard tells us that the writer was an apothecary.

First publication of the first dental text-book; the first **Dental Text-Book.** work of which we have any knowledge, written by **1728.** a dentist for the express purpose of instructing dental practitioners and dental students," "The Surgeon

Dentist," by Peter Fauchard, published at Paris, 1728. Peter Fauchard was, I think, the first writer to style himself a Surgeon Dentist. Very briefly indeed we will review his work in systematizing dental pathology and dental therapeutics. In chapter V, of the first volume of his work, he arranges the diseases of the teeth into two classes. First, diseases of the teeth themselves; and second, those diseases symptomatic of diseases of the teeth.

The first class he subdivides into two. First, those due to causes operating within the teeth, such as congenital weakness, the effects of malnutrition, or of such diseases as scurvy, indigestion, or jaundice. Second, those due to exterior causes, such as altered secretions, the fermentation of food in contact with them, heat and cold, the use of improper tooth powders, the immoderate use of smoking tobacco, neglect of proper care, the use of mercury, etc. He still further divides the diseases of teeth into three classes. First, those produced by exterior causes, such as tartar deposits of various kinds, uneven wear, erosion, caries, fractures, etc. Second, those affecting the parts within the alveolas, or covered by the gum, such as caries upon the roots of the teeth, inflammation, abscess, atrophy, etc. Third, disorders which the teeth cause to neighboring parts, such as caries of the alveolas, inflammation of the periosteum, fractures of the alveolas caused by extraction, hemorrhage,

ulcers of the tongue or the lips, fistulas of the gums, the palate, the jaws, or the chin, etc.

Among disorders symptomatic of diseases of the teeth he enumerates abortions caused by diseases of the teeth; nausea, diarrhoea, fever, insomnia, marasmus and convulsions of infants, etc., due to pain in the teeth; ulcers and swellings of the parotid glands and the tonsils, pains in the ears, tumors and swellings of the jaws, etc.

We have in this systematic arrangement of disorders of the teeth and disorders caused by the teeth, evidence of a vast stride in exact dental science since da Vigo's days. Fauchard has no specifics for toothache, nor does he blister the shoulder, or the nape of the neck to relieve an aching tooth. He uses for this purpose the oil of cloves, or of cinnamon, placing a little of either or both combined upon a morsel of cotton within the cavity of decay. He uses the same medicament preparatory to filling, if the cavity is at all deep. He relieves an abscess by opening into the pulp cavity, to permit the exit of pus, or opens a way for it through the gum by means of poulticing, or by the lancet. While his remedial agents seem to be few in number, he used them with a definite purpose in view, and was well acquainted with the rôle each was expected to play. In the interval between da Vigo and Fauchard's day, dental *materia medica* had become a science.

The Utility of Prophylactic Treatment in the Preservation of the Teeth.

By H. C. REGISTER, M.D., D.D.S., Philadelphia, Pa

Read before the New Jersey State Dental Society, Asbury Park, N. J., July, 1898.

The practice of stomatology includes nothing more vital in its relation to the oral cavity, than the anticipation and treatment of caries of the teeth. From the commencement of the present century, when Hunter gave color to the generalizations in anatomy and physiology, caries of the teeth has claimed considerable attention in the medical world, being accepted until recent date as an inflammatory process within the organ.

In very recent years, however, elaborate studies in the lower forms of life have made plain the existence of micro-organisms in relation to tooth destruction, under existing conditions of environment, due to the altered food habits of civilized man. This provides an environment for that evolution of vegetable life known as bacteria.

In all civilized races we have the disease known as dental caries. The more civilized the race, the more pronounced the disease, while among the aboriginal races, from the Eskimos who were flesh eaters, to the aborigines of the Sandwich Islands who were fruit eaters, dental caries had no existence. Since civilization then is responsible for the disease, it must provide the remedy in anticipating the condition. Nature in her wonderful manifestations reveals her mysteries, only in channels through which she moves and has her being. So long as empiricism is dominant, we shall continue to fall into disastrous errors. Knowledge consists in acquiring a list of facts, and the mind, to understand, must digest and mathematically apply them.

Anatomically we find the teeth are made up of hard and soft tissues, the latter entering to a large extent into the inner part and interstitial structure of the hard parts. The different tissues found in a perfectly developed tooth (to which we are confining our attention), are made up of pulp, including its vascular, with its nutrient system and odontoblastic layer; dentine, including its nerve fibril distribution with its reticulated continuity in the basis substance; stratum granulosum; enamel with its interprismatic substance; and cementum. Thus do we see the dental organs to be extremely complicated in their anatomical make up. Added to this is a physiological metamorphosis that surrounds the functional life and nutrient supply, still clouded in much of a hypothetical nature.

Further we find complications associated with the teeth in their environment, which opens up the study of germ influence, and from the best investigations of many experimenters caries has run the gauntlet of many theories.

Theory of Caries, Black. Quoting from Black: "The ancient idea of

medical men was that caries of the teeth was the result of inflammatory processes taking place within the structure of the tooth. With the advent of the chemical theory of caries it was almost immediately blended with that preceding it, so that it was, in a sense, made part of the older theory of the causative influence of inflammation; the condition of the tissues of the tooth still, as interpreted, played an important rôle in the production of caries. In the course of years the interpretation gradually passed from the inflammatory hypothesis to lack of lime-salts in the tissues of the tooth, as a factor favoring caries. In the more recent investigations

of Miller, of Berlin, and others, which have unfolded the rôle played by micro-organisms in the production of caries of the teeth, little attention has been given to the immediate condition of the tissues acted upon. It may now be said that the hypothesis that the condition of the tooth-structure, in a large degree, renders the tooth susceptible or unsusceptible to caries, exists in full force in the minds of a large proportion of the members of the dental profession."

**Tooth Structure
in Relation
to Caries.**

Mr. Tomes, of London, says, "For my own part, I still cherish the conviction that I can recognize by my eye a tooth of good quality and one of bad quality; and although I am compelled to abandon the vague idea which I once had that the bad tooth is deficient in lime-salts, Dr. Black has demonstrated that the notion is untenable, I am not prepared to give up the idea that there is a physical or chemical difference until the subject has been threshed out with far greater completeness than is the case at present."

The generally accepted theory at present is that Miller has proven that the active local cause of caries is a germ, a vegetable fungus, shown in its incipiency by Williams to be a conditional vegetable parasite especially indigenous among civilized races, living in the best estate of man. Deductions drawn from such an inference lead us to believe that *incipient* caries of the teeth is local, through an invading influence of resident germs which find a proper habitat in the saliva and in food debris, subjected to fermentation, the mouth being exceptional in furnishing heat, water and food for such a growth.

The percentage of lime in the hardest teeth as shown by Black, is relatively *alike*, and yet the clinical *differences* so apparent to every operator, existing between hard and soft teeth, point to another influence than the percentage of lime, either in a single or double salt contained in the organ. The differences of structural condition have for their cause a general physical relation with the higher or lower vital influence of the circulating fluids, interfering with osmosis. This brings us to the consideration of circulating fluids in the teeth.

The blood and nerve supply of the teeth are supposed to enter wholly and directly through the **Blood and Nerve Supply
of Teeth.** foramen, but in doing so a plexus from the same source is bunched at the apical end of the pericementum, and many of these diminutive vessels undoubtedly go directly into the pulp through the cementum at its apex where no dentine is attached.

Dr. Kyle, bacteriologist of Jefferson College, Philadelphia, has been making some interesting experiments by injecting stains into the regions of the fifth pair of nerves in fresh cadavera, to define nodules in the nares.

The diffusion of this coloring matter about and in the teeth was a surprise and may throw some light later upon the circulatory system and nerve supply of these organs. While it is not authentically known if there be but one opening, or a number, at the end of each root, recent investigations point to a plexus of blood vessels distributed throughout the root periphery in connection with the pericementum, with numerous blood and nerve connections at its apex in direct pulp relation.

Very little has been written in reference to the blood supply of the teeth. Beyond clinical knowledge Williams and Black have probably given us the best theories of blood supply.

The nerve supply is undoubtedly analogous to that found in other parts of the economy; there being two sets of nerves, those of nutrition, and the nerves of sensation. (Black says the nerves of tactile sensation reside wholly in the periodontal membrane). While the nutrient supply has not been absolutely shown by histological research, Williams and Black express their belief in the origin of a set of nerves rising directly from the odontoblastic layer, and another set coming directly from the pulp between the odontoblasts; and as Williams expresses it, "there is a direct and vaso-motor nerve relationship between the pulp and the fibrillæ in the basis substance of the dentine. I have been over the literature somewhat carefully and can find only one, and that an indirect reference to this point, and as might have been expected this comes from Dr. Black."

A consensus of opinion of these two gentlemen point to there being a sensory nerve supply and a nutrient nerve supply independent of each other throughout the pulp and dentine. Continuing Williams says, "The difficulties in the way of positive conclusions on this point may be sufficiently indicated by the great diversity of opinion held by well known histologists. Tomes, Kolliker, Waldeyer and many others say the dental fibres are in fact prolongations of their cells. Bödecker's final conclusion is that the dental fibres come from between the odontoblasts, while Dr. Andrews and Prof. Klein assert also that they are prolongations of a special layer of cells coming directly from the pulp between the odontoblastic layer."

Clinical observations undoubtedly point to such an anatomical condition as this dual relationship. The writer believes histologists will demonstrate in time that both pulp and dentine contain a medulated nerve supply of nutrition and sensation outside of protoplasmic diffusion. To the writer it is clearly demonstrated by osmotic influence, a vital tooth not yielding to dehydration of the air blast, while a devitalized tooth does.

Fillings as Therapeutic Agents. The art of filling teeth overcomes difficulties in giving form, adaptation, and consolidation in re-establishing the organs to a normal functional condition, having due regard for contour, gum festoon, interproximal space and occlusion.

Let us endeavor to be rational in our efforts to rebuild the waste places and let us strive to anticipate this devastation by using our knowledge of cause and effect. It is an old proverb that to know the cause is to find a remedy, but a better one is to find a "preventive" for the cause. Immunity through germicidal treatment must force itself upon laity and profession alike in holding in abeyance or destroying an influence so persistent as the incentive cause (bacteria) in destroying human teeth.

Enamel is the hardest of all animal tissues, and according to Williams, is a formed material, having no vital response after the enamel membrane has been absorbed within itself in the completion of the organ. This conclusion, however, is not generally accepted, many believing that there is an osmotic continuity which adjoins the interprismatic substance or enamel glue in direct relation with the stratum granulosum and the terminal nerve fibres of the dentine. In other words, protoplasmic influence passes from the nutrient nerve terminals to and from the enamel periphery through its interprismatic substance. This to the writer's mind is undoubtedly shown to be the case and explains the superficial action of an acid upon the cutting edges of teeth that have been denuded of their cuticle, which is termed "setting the teeth on edge."

We find in specimens shown by Williams a physical resistive response to the inroads of incipient caries, where the enamel glue is becoming intruded upon, before a cavity is formed, which induces Nature to make more dense the dentinal basis substance as a barrier against the inroads of a progressive disease; conditional physiological changes heretofore probably unaccounted for in many of Tomes' early investigations.

The tooth is a living organ and should be treated as such. While our practice is largely made up of mechanical efforts, art ceases after giving the lines of contour and harmony, as a whole, to the organ where Nature's effort is nil in restoring the devastation. Pathology asserts itself in making physical and mechanical relations harmonious as a whole by the application of mechanics, as a therapeutical agent.

The enamel margins of cavities should receive a finish essential to a perfect adjustment of the filling material. Herein lies one of the greatest causes of failure, for the perfect contact of filling and tooth structure is from clinical observations much to be desired.

A joint free from inequalities or tooth debris, means the re-establish-

ment of a normal internal condition of the remaining part of the organ. The latter restores harmony of contour with the filling and tooth joint, with the minimum of danger of a recurrence of caries, from a new culture being made along its border.

In the preparation of a cavity for filling it should be made upon lines of *greatest strength in relation to cleavage* and there should be an effort to maintain the nutrient supply, either direct or by osmotic action around the foreign body, the filling. In every case, both cavity and tooth surface should receive at the hands of the operator, a thorough sterilization, which can be accomplished with either a liquid or gas, or both.

I am experimenting with gases, such as carbonated hydrogen (illuminating gas), and formaldehyde gas, which are pointing to a field of usefulness heretofore unknown. My present method of application is controlled by converting the rubber dam, carefully secured to place, into a bag, and forcing the fumigating gas into it and around the teeth.

Undoubtedly, to Williams, do we owe a debt of

Relation of Water to Caries. gratitude for showing us the actual growth of bacteria upon enamel. This parasite fastening itself upon the dental organs, as does the algae upon a water log, the sea moss upon the rock, or the lichen upon the forest tree, to the writer's mind lives by sapping the vital element essential to its own life sustenance, by decomposing the supporting growth or mother-plant. This is accomplished by fungi containing no chlorophyl, and which consequently are not oxygen producers. That an acid is at work in caries of the teeth as the precursor may be true, as it is one of the by-products of bacterial decay, but seldom, I think, other than a nascent decomposer in rendering the structural changes in the element compatible in its appropriation with water to the root source of fungus growth, as the menstruum through which all conditions of animal and vegetable life find vital force. Water is the essential factor of an animated world. In an article recently read by Dr. Hart, of San Francisco, he takes the ground that decay is a natural force acting through media, the chief of which is water, on all material bodies. That it is not bacteria, acids, alkalies, salts, alcohol or oils that cause or prevent decay, but that their action is dependent on water. To bacteria he would ascribe the cause of the fever present in diseases like typhoid, scarlet, yellow and other fevers that owe their origin to the growth of bacteria. He showed the great power of bacteria for consuming water, and described the emaciated condition present in consumption due to the power of abstracting water from the tissues on the part of bacteria. He believed there was some sense at least in the practice, as followed by the ancients, of refusing a fever patient all the water he wants. He would combat the action of bacteria by keeping the

water protected in the tissues from the solvent action of bacteria. This he claims is the manner of action of many of our most powerful antiseptics and germicides. He says:

Teeth Rendered Immune to Caries. "We speak of persons being immune or susceptible to bacterial growth. Immunity, I believe, is the result of the cells becoming so specialized as to be able to render the water of combination insoluble or inaccessible to bacteria or *vice versa*.
Hart

"Oil poured on water will form a film that retards evaporation and growth of bacteria. Bacteria will not grow on tissue covered with any of the essential oils, like oil of cinnamon, because the oil protects the water, or has a greater affinity for the water than have the bacteria. So it is by protecting the water in tissues by treating them with solutions that have a greater affinity for the water in the cell than have the bacteria, that our chief antiseptics and germicides have their power.

"Disease generally makes its appearance through a change in the water, which is ninety per cent. of the weight of body. The more stable we can keep the water in the body, the greater its power of resisting disease.

"In practical application let us see if we can render the water in the teeth inaccessible to bacteria. We know that decay oftentimes becomes checked, and the enamel and dentine immune to bacterial growth. I believe this immunity is due to the dentine and enamel having attracted compounds that have a greater affinity for the water in the tooth than have the bacteria, or because the tooth has taken up substances resistant to the action of bacteria, as is seen in the mouths of users of tobacco.

"I have tried for the past three years to harden enamel and dentine against the action of bacteria, and have been uniformly successful in making the tooth take up substances like formaldehyde, nitrate of silver, sulphate of copper, chloride of zinc, and other substances of a like nature that have proven themselves to be powerful antiseptics and germicides. I believe their power is directly owing to their ability to place the water in the enamel and dentine so as to be insoluble or inaccessible to bacteria. I have treated with success cases where the teeth were covered with white chalky spots, literally melting away before the action of bacteria, without removing the decay or filling."

An average man requires fifty-nine ounces of food per diem. He needs thirty-seven ounces of water for drinking, and in breathing he absorbs thirty ounces of oxygen. He eats as much water as he drinks, so much of that fluid being contained in various foods. In order to supply the body, and to make up for waste of tissue, he ought to swallow daily the equivalent of twenty ounces of bread, three ounces of potatoes,

one ounce of butter, and one quart of water. The body of a man weighing one hundred and fifty-four pounds, contains ninety-six pounds or forty-six quarts of water.

This decomposition of animal tissue under the influence of vegetable vital energy, I have witnessed with much interest in placing bones at the base of grape vines. If sufficient water is supplied, a large development of rootlets envelops the bone substance. This is analogous only. Oral bacteria are indigenous only under conditions that will place the environment in perfect compatibility with the habit of the vegetable growth, being a fungus, devoid of coloring matter, of the mushroom character. The teeth afford the opportunity for fixing or planting the growth. Unless it is attached there can be no caries. Caries may be produced artificially in an incubator, as easily as we can hatch and raise chickens without a mother. Miller's great work was done under just such conditions, but while he destroyed tooth structure just as it is done in the mouth, he left it for Williams to show us how the process is carried on. The acid that is supposed to destroy tooth tissue is not always demonstrated clinically from the simple tests of litmus paper pressed into cavities. The manifestation or reaction of a free acid does not yield to the test universally. I have not made a tabulated table of tests, but the cases showing an absence of an acid reaction will probably equal those giving it; in other words, where the saliva does not give it, the tooth cavity does not; as for an alkaline reaction, I have never gotten one.

Pulpless Teeth Resist Caries. Undoubtedly the breaking of the interprismatic substance long before the enamel prisms are broken, came from the dissolution in the destroying influence of bacteria; but is it acid simply, or association with a vital energy in appropriating the elemental tissue as food life to itself? There is a difference, too, presenting quite a marked structural change between vital and devital enamel and dentine. I hold that enamel is a vital tissue when normal, so far as osmotic action can make it so. The progress of caries in devitalized teeth is less active, presenting a different appearance from one vital. The latter shows a disintegrated appearance as a whole, with loss of integrity of structure, yet much of it will be quite free from caries. Dr. Maxwell says, "Clinical observation also demonstrates that pulpless teeth are less liable to caries in the same mouth than those containing living pulps, and when caries begins the progress is much slower."

A tooth in my own mouth is very painful to suction as soon as bacteria grows and is established; this ceases immediately upon the use of energetic germicidal agents, such as nitrate of silver, formaldehyde, etc.,

and remains so for months. This changed condition rendering the soil immune to bacterial impressions for limited periods, is suggestive of a course of treatment that in time may render the individual immune to attachments of this vegetable fungus, *leptothrix buccalis*, without which there can be no caries of the teeth. I am inclined to believe a course of treatment with sterilizing liquids and gases, at stated periods, sufficient in energy to destroy all attached *leptothrix* and other micro-organisms, assisted by the individual with accessories, such as floss silk soaked in formaline (if the manufacturers would, in making waxed floss, use formaline in the preparation of the wax, from two to four per cent., it would greatly aid in bringing about the desired result; otherwise the floss could be soaked directly in the formaline), or other germicides for use in the interproximal spaces; the atomizer with its prescribed solution (I called attention to this subject in a paper read before the Pennsylvania State Dental Society in 1888), a small brush of good shape, with powder both cleansing and germicidal, such as may be found in the admixture of Fuller's earth—the hydrate of aluminum to a chalk base, with two per cent. solution of formaline, in connection with general hygienic care, point to a possible immune condition.

Suggestions in Bridge Work.

By H. H. JOHNSON, D.D.S., Macon, Ga.

Read before the Georgia State Society at Lithia Springs, Ga., June, 1898.

Porcelain fronts in crown and bridge work are liable to be fractured during the process of soldering, from various causes, some of which it will be my endeavor to point out. These troublesome fractures probably occur more frequently by the action of borax, than from any other one cause. Borax makes a very effective flux, and is generally considered the best we have. In using high karat solders and consequently intense heat, the borax becomes almost perfectly liquid and very active and penetrating; so much so that it will often pass between the porcelain and investment, and where it comes in contact with the porcelain it may adhere to it so firmly that it cannot be removed without leaving a rough check, and in many instances a complete fracture will result from the contraction of cooling, especially if the porcelain is a little thin at that point. Another frequent cause to

which attention may not have been directed, is imperfectly fitted backings. The backing should in all cases be carefully burnished down around the outer edges of the porcelain and carefully fitted around the pins. If the backing be carelessly fitted and large holes made for the pins be left unclosed, solder, together with borax, is liable to flow through the holes and under the edges of the imperfectly fitted backing, and almost always results in a broken porcelain front. Having the investment so shaped that it is thin over one part and thick over another part, may cause cracking, from unequal heating.

Of course, all know, and it is superfluous to mention here, that irregular or too sudden heating or cooling will always cause a break. An intense flame should never be thrown directly on the backing which, of course, is the same as directing it on the porcelain itself. Haste or rather impatience is a frequent cause of trouble on this line, by commencing the process of soldering before the investment has become thoroughly heated.

It must be borne in mind that the investment material and porcelain heats many times more slowly than the metal part of the work. Unless all the work be heated together, equally, trouble may be expected.

If the backing be cut too large and lapped over the cutting edge and sides of the porcelain, during the process of heating the metal expands, and at the same time becomes soft and hugs the porcelain closely; as it cools it contracts and breaks the edges over which it is lapped.

If porcelain teeth be set up in close contact with each other the expansion when heated may cause one or more to break. A small space should be left between them.

Having now given some of the most frequent causes for breakage, a few suggestions as to how such accidents may be avoided will not be out of place.

The porcelain is first ground to fit the gum or cap, whichever will be required. If the bite is at all close the porcelain may be ground from the pins, gradually out to the cutting edge, bringing it almost to a knife edge at the point. When this is done and the surface of the porcelain carefully cleaned with alcohol to remove all wax, commence the backing with a piece of twenty-four karat gold, about thirty-six gauge. With this thin pure gold a perfect adaptation is very easily secured, if it be annealed several times during the process of fitting. If the porcelain has been ground to fit a cap, as in making a Richmond crown, the backing should extend over the entire surface, from cervical edge to cutting edge. This is done to allow the solder to flow between the cap and backing, forming a perfect joint. The backing should be allowed to extend a little over at

right angles, but it must not be bent down or lapped over the labial side. Supposing the backing to be fitted as desired, carefully remove it from the tooth and place it on charcoal or an asbestos block and flow twenty-two karat solder over the entire surface, from the pins to the cutting edge. Flow this on as thick as it will be required when the work is finished. It may at intervals be placed on the tooth to see how thick the bite will allow it. If this has been done well, the work of soldering is nearly half finished and the tooth has not been heated at all. Next mix up a little thin cement, spread it on the backing, place it on the tooth, and press it down hard, squeezing out all the surplus. Spread the pins to hold the backing on, and the tooth is now ready to be waxed in place on the model. If it be a bridge be careful that the porcelains do not come into absolute contact; have a little space between each one.

Invest in asbestos, pumice stone and plaster.

The Investment. Bring the investment well over the cutting edges of the backing and teeth, for it will be remembered that all the soldering that will be needed for that part of the work has been done before the backing was fastened on. This is very important, for it absolutely prevents any possibility of borax reaching the cutting edges of the porcelain facings, where they are thin and likely to break, and also prevents these delicate parts becoming exposed to an accidental blast from the blowpipe. After the investment has set, remove the wax and fill carefully all the little space between the backings with investment material, to prevent the borax reaching the porcelain from this direction. Cement answers the purpose just as well for this last, if it be allowed to set hard before commencing to solder. If these directions have been followed, the piece is safe from borax and from the danger of the solder getting in between the backing and the porcelain.

The piece is now ready for heating. For this

Heating Up. purpose nothing is better than a Bunsen burner and charcoal. Use the burner with the ordinary spider on it. Next get a piece of stove pipe about twelve inches long and six inches in diameter. With a heavy pair of plate shears, cut down from one end, about four inches, at intervals of an inch and a half. Turn these flaps back at an angle of about forty-five degrees. Cut a few notches in the bottom end to admit air, and set this over the Bunsen burner. Fill this receptacle with charcoal, light the burner and place the investment on it. In about fifteen minutes the work will be hot enough to flow eighteen karat solder without the aid of a blowpipe. It will be remembered that all the soldering now needed will be to unite the parts together as the strength of the work has been made before the backing was fastened on the porcelain.

If these directions are followed carefully, there will be hardly any chance for a broken tooth.

First—Keep the porcelain free from borax.

Summary. Second—Fit the backings so the solder cannot get in between.

Third—Do not lap the backings over the points or sides of the teeth.

Fourth—Do not allow the porcelains to come in absolute contact.

Fifth—Have the investment the same thickness over all parts of the tooth.

Sixth—Do not attempt to flow the solder until the porcelain is as hot as the metal.

Seventh—Do not use a pointed flame.

President's Address.

By WILBUR F. LITCH, M.D., D.D.S.

Read before the Pennsylvania State Dental Society at its Thirtieth Annual Meeting, Held at Ebensburg, Pa., July 12-14, 1898.

Fellows of the Pennsylvania State Dental Society:

The thirtieth annual meeting of the Pennsylvania State Dental Society is held under conditions highly favorable to its welfare as an organization, and to the welfare of the profession of which in Pennsylvania it is the official representative.

In almost every State in the Union dentistry has been officially recognized as a special branch of medicine, and legal barriers have been raised against its practice by the ignorant and untrained.

In several States a high standard of educational qualification for the right to practice has been established, and there is every reason to believe that all the other States will ultimately follow their example.

To meet advanced educational requirements our dental schools are extending and making more thorough and comprehensive their courses of instruction; large and costly college buildings have been erected, in which every facility is afforded not only for scientific research, but for technical training.

The fact has been recognized that the lecture is at best only an introduction or guide to practical attainment either in art or in science; that the scholar and the operator are not made by much speaking or much hearing, unless these are supplemented by much doing; that it is in the study, the laboratory, the clinic that true knowledge and skill are attained.

As the light of publicity is turned more and more searchingly upon the results of their educational work, schools of instruction are compelled to recognize these facts and to conform their methods to their requirements. So that there really is a healthy growth in dental education, a growth not measured by the multiplication of schools, although each year adds to their number, or of students, although they multiply abundantly, but by the character of the training which students are now receiving in all colleges of recognized standing.

In a large measure this result has undoubtedly been due to the organization of the National Association of Dental Faculties, which, although having no official status under the law, either state or national, has made itself an impelling force in educational advancement, and has secured a much greater uniformity in the curricula of dental colleges than would have been possible without its intervention.

In the field of dental literature as well as of dental education, a healthy growth is evidenced. Notable among the literary events of the year has been the publication of three admirable text-books treating respectively of Prosthetic Dentistry, Operative Dentistry and Pathology, Therapeutics and Pharmacology, each work edited or written by members of the Pennsylvania State Dental Society.

Another work on the Anatomy and Histology of the Mouth and Teeth, written and largely illustrated by our fellow-member, Professor Broomell, is now in press and will, I am sure, receive a cordial welcome from the profession.

Our representative periodical literature still maintains its high character and unquestioned supremacy in the field of dental journalism throughout the world.

In the domain of practical therapeutics, while **Pharmacology and Therapeutics.** there are no important recent original discoveries to be recorded, satisfactory progress has been made through a better comprehension of the laws governing the use of remedies with which we have already become familiar.

With cocaine this progress is especially noteworthy, either as regards its subgingival hypodermatic or cataphoric use.

For tooth extraction by the use of solutions only one or two per cent. in strength, it is found that satisfactory anesthetic effects can be obtained with much less danger than untoward results will ensue than where stronger solutions are employed; nearly all fatalities thus far recorded having resulted from the injection of six, eight, ten, twenty per cent. solutions. The drug, however, being erratic in its action, unfavorable symptoms, more or less alarming, have in certain cases of great susceptibility followed the employment of doses almost incredibly small.

An acute cocaineism is generally associated with increased heart-strain due to vaso-motor stimulation, with resultant capillary contraction, vaso-motor depressants, such as glonoin, are now often combined with cocaine in order to counteract its contractile effects upon the capillary vessels; excito-motors, such as atropia, are also employed to fortify the heart against the results of undue strain.

While these combinations are theoretically justified, their absolute efficacy can thus far be only empirically assumed. As a rule polypharmacy is to be avoided, especially when the drugs administered are potent in character. Apart from the inconvenience of the method, it is probable that the most satisfactory results, both as to systemic and local action, follow the employment of freshly made and thoroughly sterilized weak solutions simply of cocaine for each day of office use.

Cataphoresis as a method for obtunding sensi-

Cataphoresis. tive dentine and anesthetizing exposed pulps preparatory to their extirpation has probably secured a

permanent place in our armamentarium. In no direction has there been more thorough and painstaking investigation than in the theory and technique of this process; batteries and appliances for measuring current rate of flow and pressure are rapidly approaching perfection. Here, too, the tendency is toward weaker cocaine solutions as well as a lowered amperage and voltage of electric current. These improvements in technique will, doubtless, do much to obviate the untoward effects upon pulp-tissue and root investments not unfrequently observed when the earlier and cruder cataphoric methods were employed.

The efficacy and relative safety of low percentage solutions of cocaine is fully evidenced by the success of the "infiltration method" of Schleich, by which method complete anesthesia of considerable

areas of tissue is secured by injecting at short intervals successively along the line of projected incision cocaine combined with morphine in a sterilized saline solution so weak that one pint of water contains only about one-tenth of a grain of cocaine and one-quarter of a grain of morphine. Many important surgical operations have been successfully performed by the aid of cocaine thus administered, and similar solutions, somewhat stronger, have given good results in tooth-extraction.

Eucaíne in its various forms has already been tested with favorable results, and holocain, another of the almost innumerable coal-tar products, has recently been introduced. In ophthalmic surgery both of these agents are found to be decidedly more irritant to the conjunctival surface than cocaine, holocain being much the less objectionable of the two. They

do not dilate the pupil as does cocaine and they produce capillary dilation instead of the vascular contraction always following cocaine applications; hence, theoretically, they are much less liable to produce dangerous symptoms. This latter claim is by no means fully substantiated; on the contrary, unfavorable effects, both local and systemic, have followed the use of eucaine in dental practice, and there is but little reason to believe that similar results will not occur with holocain.

A consideration of no small significance in connection with the employment of these and similar proprietary preparations is that they are essentially secret remedies, the profession having only the most vague information as to their real constituents, and this gained from complex formulæ published to bewilder rather than to inform. Other things being at all equal, the conservative practitioner will employ an agent the source, composition and properties of which he knows thoroughly rather than one of which he is almost entirely ignorant.

For producing general anesthesia in dental

General Anesthesia. practice nitrous oxide gas still maintains its supremacy. Experience has taught the necessity for care in all cases and wise discrimination in special cases, such as where the patient is apoplectic, with weakened and fatty heart-walls, engorged and degenerated blood-vessels, and imperfectly aërated blood; under such conditions, if given at all, nitrous oxide should be combined with oxygen gas after the method so successfully practiced by Hillischer, of Vienna, and Hewitt, of London.

Ether vapor with oxygen is a combination now

Ether Vapor with Oxygen. frequently employed, and is rapidly gaining favor. The ether placed in an ordinary wash-bottle is vaporized by passing through or over it a stream of oxygen gas which, laden with ether vapor, passes into the exit tube and thence into an inhaler; the ether thus reaches the lungs of the patient in a minutely divided state and thoroughly commingled with oxygen, the latter agent serving not only as a diluent and vehicle for the ether vapor, but also as a blood-aërator and heart-stimulant, so that a good color and good heart-action can be maintained throughout the anesthetic state.

Schleich's anesthetic mixture is a very recent

Schleich's Anesthetic Mixture. addition to the list of anesthetic combinations. Schleich's basal formula is chloroform, 45 parts; "petroleum ether" (purified benzine), 15 parts; sulfuric ether, 180 parts. In this combination its inventor has sought to secure the rapid action of chloroform conjoined with the safety of ether; its superiority over other chloroform and ether mixtures depending, ac-

cording to his theory, upon the fact that it has a boiling point greater than body temperature. The boiling point is the basis of the Schleich theory. Thus chloroform alone has a boiling point of 149° F.; ether alone a boiling point of only 93.2° F. This higher boiling point Schleich thinks is the true physical reason why chloroform requires not only much less time, but a much smaller dose than does ether to produce anesthesia. The purified benzine which forms a part of the mixture has a boiling point of between 140° and 149° F. Administered in the form of vapor it produces general anesthesia, and probably serves also to effect a more perfect combination or solution of the ether and chloroform.

The three liquids combined in the proportions just mentioned give an anesthetic mixture with a boiling point of 100.4° F. For the more prolonged operations two other mixtures having the same ingredients, but in different proportions and with higher boiling points, respectively 104° F. and 107.6° F., are employed. With these three mixtures Schleich claims to produce quick and safe anesthesia, without excitation or cyanosis, with no accumulation of mucus or saliva in the throat and no subsequent bronchitis or broncho-pneumonia.

In many hundred cases both here and abroad these mixtures have been tested, with results reported as generally not unfavorable and often highly satisfactory. To those who believe that chloroform in whatever combination is intrinsically dangerous, such mixtures fail to commend themselves, and fatalities from their employment they regard as sooner or later inevitable.

Of interest in connection with the subject of **The Neuron.** anesthesia is the most recent theory regarding the

physical effects of anesthesia upon the nervous tissues through which anesthesia is produced. The theory in question is the outgrowth of the now generally accepted view as to the morphology of nervous tissue, for which the world is chiefly indebted to the researches of the Spanish histologist, Ramón y Cajal—the view, namely, that apart from its reticulated framework, or neuroglia, its blood-vessels and lymphatics, the nervous system is made up of an infinite number of cells called neurons, each having prolongations or processes, termed respectively dendrons and axons, with collaterals and end-tufts by which they are brought into contact with other cells similarly provided, to which they convey or from which they receive nervous impulses.

These cells, or neurons, are in no case in actual union or fusion with other cells, but communicate and receive impulses solely by contact, as do the free ends of electric wires when brought together.

Each neuron may probably be regarded as a minute battery for

accumulating, intensifying and rendering operative in the form of nervous impulse or vital energy that mysterious force which we call life.

Certain observers—Rabl-Rückard, Lépine, Duval and Dercum—have claimed that these independent cells have within infinitely circumscribed areas the power of individual movement through which, by contraction and prolongation of processes and end-tufts, contact may be broken or restored, with consequent modifying effects upon the continuity of the nervous current.

Thus, it is claimed that in sleep consciousness is lost when in certain brain areas the end-tufts of the neurons fall apart through fatigue or through a lessening of their cell contents by exhaustion.

When consciousness is lost as the result of a violent blow upon the head, the effect may be attributed to a sudden retraction of neuron processes caused by the concussion.

In anesthesia, if we may assume that this contraction is progressively brought about through the influence of the anesthetic agent, a physical basis for the progressive loss of consciousness, movement and sensation is furnished. Precisely in what way anesthetics cause this contraction of the neuron is not demonstrated. Bernard long ago advanced the theory that the effect on nerve-cells, as he then knew them, was that of "semi-coagulation of their intimate constituents"—a chemico-physiological hypothesis which seems more reasonable as applied to ether or chloroform or allied ethyl or methyl compounds than to nitrous oxide gas or, among the alkaloids, to morphia, which, so far as known, are not coagulants of protoplasmic tissue. Whatever may be the true causative agency or agencies exciting movement in the neurons, the theory which makes sleep, anesthesia, the sudden paralysis and recovery of hysteria, and allied phenomena dependent upon neuron motility is the most logical and satisfactory yet presented.

**Operative
Technics.** In dental operative technics may be noted as significant a somewhat extended experimental reversion to the earlier methods of hand-pressure in the

impaction of gold, this movement being to a great degree coincident or associated with the recent introduction of forms of gold so thoroughly plastic and yet so cohesive in character that they can be worked in relatively large masses and condensed largely, if not entirely, without the use of the mallet, thus greatly shortening the time required for operations and avoiding to a great extent, if not entirely, the always disagreeable and often highly undesirable effects produced by malleting in any of its forms.

For patients of feeble vitality or of a highly irritable nervous organization, the use of hand-pressure, as opposed to percussion, is undoubt-

edly indicated to whatever extent it may be mechanically practicable; it may cost the operator more in nerve force, but it saves the susceptible patient much suffering with its attendant nerve exhaustion; and from this standpoint—the standpoint of sound physiology—perhaps too much disregarded of late years, this reversion to an older method is really a distinct advance.

In prosthetic dentistry there may, I think, be noted a more conservative tendency in regard to the introduction of the various forms of artificial crowns

Prosthetic Dentistry. in cases where reasonably good and permanent results may be secured by the stopping process. For the anterior teeth, where sightliness is of greater importance, the practice has some measure of justification; but for inconspicuous teeth, with sufficient strength of crown walls, a good filling is vastly superior to any artificial crown, and the progressive improvement in the character of the filling materials at our command renders the practice alluded to less and less excusable.

Bridge work for suitable cases, notwithstanding the many failures which have resulted from its injudicious employment or imperfect construction, still maintains its place in the confidence of the profession and of the public. When a partial denture is really required for masticatory purposes, bridge-work unquestionably holds the first place in the list of artificial substitutes. When the masticatory function is not a factor and appearances alone are to be regarded, the nature of the denture to be introduced is to be determined by considerations of expediency arising out of the conditions of the case.

As a technical detail in the construction of bridge-work may be favorably noted the building up of the heavy metal work required for safe anchorage and span strength independent of the frail porcelain veneers, or facings, thus entirely avoiding the strain to which they are subjected in the soldering process, and which so frequently results in their fracture. By the method to which I refer the porcelain facings, by aid of headed pins or a flanged platinum plate, are cemented and not soldered to the metallic backings. Properly done, this method gives perfect security and enables the operator to arrange incisor, cuspid or other facings in absolute contact, or even with an overlap when called for by the artistic requirements of the case.

The Dental Council.

On the ninth day of July, 1897, the act to establish a Dental Council and State Board of Examiners of the State of Pennsylvania received the approval of the executive and became a law. By that act the president of this society becomes for the period during which he holds

office a member of the Dental Council of the Commonwealth, and, at present, the only representative of the dental profession in that council, so that one of the most important responsibilities resting upon the president of this society is that which devolves upon him as the official representative of the dental profession of the State in the council in whose charge has been placed the execution of the provisions of the dental act; hence this society will always have a right to expect from its presiding officer a statement regarding this portion of his official duties.

* * * * *

As a member of the Dental Council I can testify that thus far these examinations have been conducted in a spirit of absolute fairness and of the most painstaking fidelity. Probably no considerable number of examination questions could be arranged which would meet the views of everybody interested; for those who sit in judgment—teachers, students, graduates, practitioners,—even if unprejudiced and equally well informed, which is assuming a good deal, look at the subject from standpoints so diverse that absolute unanimity of view is practically impossible. The general consensus of opinion is, I am sure, that every recent graduate in dentistry should be able to pass the ordeal of the examinations thus far held, and that if he does not the fault does not rest with the Board of Examiners. Personally I know that in all cases of doubt they have leaned to mercy's side, and have stretched leniency of judgment to its utmost possible limit.

As both questions and answers are made of record and filed in the office of the Secretary of Internal Affairs for the period of five years, not only must each question be carefully framed for fitness, but each answer must be as carefully scanned for accuracy. This wise provision of the dental act serves as an effective barrier against either undue leniency or unjust severity in the conduct of these examinations. Those deeming themselves unjustly rejected have ample remedy in the courts of law, with the evidence contained in their written examinations fully at their command.

During the year there have been held three examinations, with two hundred and twenty applicants, of whom one hundred and ninety-eight passed successfully and twenty-two failed.

The influence of the present dental law upon the status of dentistry in Pennsylvania cannot fail to be salutary if its provisions are strictly enforced. As a stimulus to the indolent or negligent student, and hence as a help to the teacher, its influence is already manifest. To make it increasingly effective in the future the standard of examinations must not only be maintained, but for a time at least progressively advanced.

A higher standard of preliminary training is especially required.

Under existing conditions it is but simple justice that the Dental Council and the Examining Board should not make illiteracy a bar to practice if the applicant is technically competent. The interdiction of illiteracy should be made at the beginning and not at the end of long years of college work.

Under the law both the Medical and Dental Councils are required to satisfy themselves that applicants for license have received a good common school education. This can be done only by insisting that colleges shall demand of applicants for matriculation evidence that at least that modest requirement has been fulfilled.

The dental act provides that licenses to practice granted after due examination by the Examining

Interstate Comity. Boards of other States may be accepted in lieu of an examination before our own State Board, provided that the Dental Council find the requirements of such examination to be substantially the same as those demanded under the Pennsylvania law.

The equivalency of these respective requirements is difficult to determine in the absence of any official record of examination papers to which access can be had for exact information, as in this State; and while the Dental Council have received several applications for licenses under this provision of the act, none have thus far been granted. One is still pending.

The Pennsylvania law makes no provision that the acceptance by the Dental Council of the examinations held in other States shall be dependent upon reciprocal concessions from the States thus favored. Such a qualification of the concession is clearly in the interests of justice and interstate comity, and an amendment embodying that additional clause should, if possible, be secured.

It is earnestly to be desired that the educational requirements of the several States of the Union shall soon be made uniform, so that a license to practice issued by any State may be unhesitatingly accepted as a sufficient guarantee of fitness for practice by all other States.

While a general advance in educational meth-

Commercialism. ods and requirements will doubtless enhance public respect for and confidence in our profession, the fact cannot be ignored that our professional good fame is being seriously threatened by the gross commercialism which characterizes certain phases of dental practice. The advertising dentist was never more in evidence than today, and his violations not only of professional propriety but of common decency never more audacious, persistent, and shameless.

It is not necessary to go into details; they are furnished in the columns of every newspaper; they stare us in the face from fence and tree

by the country roadside, from the shop fronts of our city streets, and the walls of the department store. It is a scandal from which medicine as well as dentistry suffers, and in hardly less degree.

A discouraging feature of the situation is that many of the most obnoxious of the advertising guild are graduates who entered college, pursued their studies, and secured their degrees with the fixed purpose to apply trade methods to dental practice and secure publicity and notoriety at whatever sacrifice of self-respect and professional propriety they might find necessary, so that it would appear that we have to deal with an evil which stricter educational requirements and a stricter enforcement of dental laws may mitigate, but will be powerless to eradicate.

In the meantime the evil is unquestionably a growing one; many worthy and reputable practitioners are feeling the stress of that conscienceless competition. It is also demoralizing to our young graduates, many of whom in order to tide over a period of financial stress take employment in advertising establishments, whose methods they cannot but despise, as they must despise themselves for the ignominy of their position.

The question has frequently been asked, "Cannot the men who thus cast discredit upon the colleges from which they have graduated be deprived of the diplomas of which they have ceased to be worthy?" Unfortunately this is not possible under existing conditions.*

A decision has recently been made in New York that a physician convicted on a criminal charge shall by virtue of that conviction be forever debarred from the practice of his profession in that State; but of infractions of the minor professional morals the law does not take cognizance, and hence under the law there could be no conviction or punishment for such offences.

The courts will disbar a man who cheats his client, but they cannot, or do not, punish him for employing runners or agents to solicit business, or, if within the law, for exhausting all the resources of chicanery to free a guilty client.

The church can unfrock a priest or dismiss a minister for immorality, and it also assumes the right to do so for errors of doctrine. The interdiction as to the performance of his clerical functions is, however, limited to the churches or pulpits of the denomination from which he has been dismissed; he can exercise his priestly or clerical functions elsewhere if he can get a hearing, but he could probably be enjoined should he do so under his old denominational name.

* It is done in England.—EDITOR.

The present dental law makes a mandatory provision that the Governor shall remove from office any member of the Examining Board whose removal is recommended by this society because of "incompetency, unprofessional or dishonorable conduct." This is a valuable provision, inasmuch as it is a statutory recognition of the existence of a professional code and of the wrongfulness of its violation.

Our only safety as a profession lies in solidarity. Let this common danger unite in a common bond every worthy practitioner in the State and in the Union. Make more sharply defined the distinction between the methods of the reputable and disreputable practitioners, and upon the latter let fall more keenly the lash of professional opprobrium.

Formulate a reasonable code of ethics such as that of this society, to which all will be expected to subscribe and conform. Let the Dental Protective Association include in its good offices the enforcement of such a code by the exclusion of all future applicants for membership who will not subscribe to it and abide by it. Infinitely important results are possible through the agency of that or a similar association, if its forces are properly organized and its energies are properly directed.

Let conformity to its provisions be a requirement for the matriculate as well as the graduate. It is but reasonable that any man seeking to join an honorable profession should pledge himself to conform to the ethical code by which it is governed, and any one refusing to do so should be refused matriculation in every reputable dental college.

Whether a punitive clause in such an agreement could be enforced is, in the present lax state of public sentiment regarding professional ethics, doubtful. Such an issue would involve new considerations as to the jealously guarded rights of the citizen under the fundamental law, and the legal problem could only be solved in the courts of last resort. In any case, however, the deliberate subscribing to a professional code by every one entering the profession could not fail to be a deterring force against its violation. The New York State Dental Society has a standing committee on ethics. I would recommend a similar provision to this society.

Enforcement of the Dental Act. Having by years of arduous study and at great sacrifice of time and money secured the knowledge and skill in dentistry demanded by the commonwealth before a license to practice is granted, it becomes but simple justice to such licensees that they shall be protected against competition with those who seek to engage in dental practice without complying with the provisions of the law.

The present dental act did not become operative until the first day of October, 1897, between eight and nine months ago. Since that time

our Committee on Enforcing the Dental Law has brought to trial one test case, that of the Commonwealth vs. H. O. Gibson, of Erie, Pa. The decision of Judge Walling, before whom the case was tried, fully sustains the constitutionality of the law, but acquits the defendant, he being held not guilty of unlawful practice under the act.

* * * * *

In sustaining the constitutionality of the present dental law, Judge Walling quotes approvingly an opinion delivered by Chief Justice Gilfillan, of the Supreme Court of Minnesota, in the case of the State of Minnesota vs. Vanderslius, and which is of such importance that I here reproduce it. The decision states "That the legislature may prescribe such reasonable conditions upon the right to practice medicine or law as will exclude from the practice those who are unfitted for it is so well settled by decisions of the courts as to be no longer an open question. The power rests upon the right to protect the public against the injurious consequences likely to result from allowing persons to practice those professions who do not possess the special qualifications essential to enable the practitioner to practice the profession with safety to those who employ him. The same reasons apply with equal force to the profession of dentistry, which is but a branch of the medical profession. That, in the exercise of that power, the legislature may require, as a condition to the right to practice, that the person shall procure a license; may designate some officer or board to issue the license, and to determine whether an applicant possesses the qualifications required to entitle him to it; and may prescribe, so far as can be done by a general law, what qualifications shall be required, and how the possession of them shall be ascertained—necessarily follows from the power itself. It is for the legislature and not for the courts to determine these things."

* * * * *

The many and intolerable exactions practiced **Patent-Law Monopolies**, upon dentists by the holders of patent-law monopolies are known to us all. From the worst evils of the most recent and formidable of these we have thus far been saved by a prolonged and costly co-operative effort, and that rendered possible only by the magnificent pluck, energy, and determination of one man, Dr. J. N. Crouse, to whom the dental profession owes a debt of gratitude which can never be fully discharged.

The defense against the crown and bridge patents has necessarily been entirely a technical one, based upon priority of use before the granting of letters patent. Without such a defense we would have been entirely at the mercy of the patentees, who, by the time their patents expired, would have levied upon dentists a tribute amounting to millions of dollars.

To prevent similar evils in the future, Dr. R. Ottolengui is seeking to secure from Congress the following amendment to the patent law: "But no patent shall be granted upon any art of treating human disease, or ailment, or disability, or upon any device adapted to be used in the treatment of human disease or disability, or attached to the human body and used as a substitute for any lost part thereof, or upon any art of making such devices, unless such device is adapted to be put on the market and sold substantially complete and ready for use or attachment."

In regard to this amendment it is sufficient to say that had its provisions been embodied in the patent law when the chief crown and bridge patents were applied for they could not have been legally granted, and must necessarily have been pronounced invalid by the courts.

The amendment in question was introduced into the United States Senate by Senator Platt, of New York; was duly read and referred to the Committee on Patents, and, as House Bill 10127, is now under consideration by the House Patent Committee, of which Hon. Josiah D. Hicks is chairman, and who informs me that the prospects for a favorable consideration and report are most encouraging.

In view of the great importance of this measure, I would recommend the adoption by this society of a resolution urging upon Congress the passage of the amendment, and would also recommend an appropriation to the fund which has been formed to defray the legal expenses incurred in securing this legislative action.

* * * * *

Our late fellow-member, Dr. J. A. Mayer, who for nearly 40 years was engaged in the practice of his profession in Mauch Chunk, has passed away since our last meeting. In personal character thoroughly estimable, he lived respected in the community in which he so long labored, and died lamented by all who knew him.

We miss also at our annual gathering one who was for many years faithful in his attendance upon and active in his participation in our meetings. The death of Dr. Alonzo Boice could not have come as a surprise to those who noted his enfeebled physical condition when he met with us last year. But though enfeebled in body, his intellectual force showed no weakening; in debate he was not less courageous and persistent, and in social intercourse not less cheerful and inspiring.

Dr. Boice was thoroughly devoted to his profession; diligent and successful in its practice and lavish in his personal efforts to conserve its interests and promote its advancement.

From their passionless repose no act of ours can move either to joy or grief these departed associates; but even though they heed them not in that dim land of the longer, deeper sleep, it is fitting that we should lay upon their graves a few memorial flowers, "pansies for thoughts and rue for remembrance," and that in our annals should be penned the assurance of our esteem for them when living and sorrow for them when dead.

We are about to resume the study of some phases of natural law as applied to the human organism and of those diseases, disintegrations, or dissolutions which are the penalty for its violation—a penalty inexorably demanded alike from the obliviousness of ignorance or the unheedfulness of knowledge; and demanded, too, not only from the guilty living, but from those who guiltlessly inherit them.

With tireless research the science of medicine has sought to make Nature's secret thought her own, and to impart to all men that knowledge by which they may at least be saved from ignorant violation of her mandates and its attendant penalties.

In that beneficent labor dentistry has borne her fitting share, and has dedicated to humanity results which need not fear comparison with those achieved by any other branch of medicine. But while we are thus assembled to learn yet more of the lessons which science has taught, we cannot as citizens be unmindful of the kindred but broader lesson which history is teaching—that in the moral as in the physical world, that for nations as for men, there can be no sin without its penalty.

Even now across tropic seas this cosmic law echoes from the cannon's mouth, as a once great but cruel and now decadent nation meets her Nemesis.

On the waves of those waters first ploughed by the prows of her adventurous ships, and on the shores of that queenly isle which she has reddened with the blood of misruled peoples and of murdered guests, her expiation is appointed. Thus have decreed the fateful Three who spin the thread of destiny.

And He who holds nations and destinies and seas and shores in the hollow of His hand has to our nation, which desired only peace, given "not peace but a sword," unsheathable until retributive justice is satisfied.

May the duty thus assigned to our reluctant hands be fulfilled bravely, as becomes freemen; wisely, as becomes a sovereign people; mercifully, as becomes Humanity.



New Jersey State Dental Society.

Discussion of Dr Trueman's Paper.

Dr. Trueman, is it not something like a hundred

Dr. J. Foster Flagg. For a hundred and twenty-five years since Fouchard wrote?

Dr. Trueman. The best authority we have places his birth in Brittany about 1690, possibly before; he died in May, 1761, in Paris; he began to practice at Nancy, but shortly after removed to Paris, where his reputation was made.

Then he probably wrote somewhere about 1740

Dr. Flagg. or 1750. I have been specially interested in the agents that were used; the manner in which the things were looked at by the various gentlemen of that day, and I have been pleased with the exceeding accuracy of their information, their ideas, and the intelligence with which they applied certain remedies. Among those remedies probably no others have been more permanent than the oil of cloves and the oil of cinnamon. It has not been pleasant for me to read in comparatively recent literature of our profession the fact that exhaustive experimentation has been indulged in by certain gentlemen who have arrogated to themselves to "work up," as they call it, the present status of dental *materia medica*, and after long and wonderfully scientific experimentation they have come to the conclusion that about as good medicaments as can be used for the alleviation of dental suffering in a large degree are the oils of cloves and cinnamon! It is not pleasant for me to read, as I did a little while ago, that Dr. So and So read a paper in which he suggested that cavities should be lined with "oxy-phosphate of zinc," and that on to that material he *would suggest* that gold foil or amalgam should be placed, and that *he thought* that excellent results in all probability would accrue from such treatment as that! Such work in medica-

ments and methods makes me feel very much like people that I have seen on sea voyages. I want to go to the rail of the ship!

Again, I saw in a journal the other day a list of medicaments for the dental *materia medica* as long and as curious as the Moral Law. It has seemed to me, that instead of venturing out in such directions, if the *materia medica* of dentistry were concentrated, and we learned better the attributes of the tried medicaments, we would be better off. One year, in the clinic room of the Philadelphia Dental College I cured every case with nothing but campho-phenique, in order to show to the students the possible variations of *one* application.

When it comes to treating teeth with putrescent pulps and troubles of that kind, after opening them and putting in the sulphuric acid and water and solution of carbonate of soda, and dressing the canals with campho-phenique on cotton, it seems to me there is nothing more to be done. It is so extremely simple, all this work, that when we hear all the talk about the *materia medica* of dentistry and the "wonderful progress that has been made in the last decade," it seems somewhat disgusting. I do not consider it any progress to hamper us with all these medicaments and to tell us *at short notice* what wonderful things they do. I have tried everything that has been offered (as long as I was associated with the clinics it was my duty to do so); but the "wonderfuls" have been largely *non-come-atibus!*

Ah, Mr. President, I leave dentistry with some feelings of regret, but the most poignant of my regrets are because of the immense amount of tomfoolery which I recognize as being added in the shape of annexes to the practice of dentistry. Still, it may be there is money in it. That is something I don't know. They say there is money in this crown work; they say there is a great deal of money in this bridge work; through my career I have not had very much of that work; as far as my patients were concerned they seldom had any occasion for crowns other than amalgam crowns, and as far as bridge work is concerned, very few of them had any space to cover with bridge work! I have found, to my idea, a sufficiency of money in the old kind of work, in the treatment of teeth in the ordinary way. I have kept my patients comfortable, I have treated and filled their teeth, I have taught "the boys" and laid aside a little for "the rainy day." What more could one desire? All this multitude of medicaments may be very nice, but my advise is to stick more to Fouchard and to the simple remedies, study those remedies and learn how to use them.

Dr. Head. I have been particularly interested in that part of the paper which spoke of the ancient use of sulphuric acid, nitrate of silver, oil of cloves and oil of

cinnamon, because, although our pharmacopœia contains a great many more drugs than that, those four drugs at the present time, if properly used must be considered the most valuable and useful of all the drugs—in fact, it might safely be said that if all the other drugs were put on one side and those four on the other, rather than give up those four drugs, we would, a thousand times, prefer to throw away all the rest.

I will not enter into the question of amalgam, because, in the presence of great authorities, those who have for a long time been in the position of humble listeners should remain respectfully silent, but in closing I want to tender many thanks to Dr. Flagg for his kind and pleasant remarks, and to Dr. Trueman for his most instructive paper.

Before the discussion is brought to a close, I

Dr. Register. should like not only to express my great gratification in listening to Dr. Truenian's paper, but to state that of all the men I know of competent to write upon this subject of the evolution of dental medicine, there is no one so well qualified as the essayist. Dr. Trueman has been for many years a collector of all of the books of every character and language that bear in any way upon the history of dentistry, and it is my hope that before he grows many years older he may be permitted to write a history which will embody the evolution of dentistry throughout, both in medicine and dentistry, so that it may come to us intact, because he is a man particularly fitted for that duty. I was extremely interested in the reference he made to those authors who wrote two, three and nearly four centuries ago concerning so many operations and methods that are being practiced today.

Discussion of Dr. Register's Paper.

Dr. Head. The points which Dr. Register has dwelt upon will commend themselves thoroughly to us. One

point interested me very much, the question as to the blood supply at the apex of the teeth. He said that it had not been worked out histologically as to whether there are several avenues of supply to the apex of these teeth. I may have misunderstood him. I do not know whether it has been worked out histologically, but there was a certain gentleman about two years ago, whose name at present escapes my mind, who reported some very interesting experiments with teeth by forcing cellulose into the various canals, and when it had hardened the teeth were submerged in acid and entirely dissolved away, when the cellu-

lose in a remarkable number of cases, fully sixty to eighty, was found to have penetrated the apical foramen of the roots to such an extent that in several cases the foramina were found to be filled with cellulose. These foramina, of course, might be avenues simply for nerves, but that is something which would be apt to stand special investigation before that statement could be made, as under ordinary circumstances it might seem natural to suppose that if there were four apical foramina there were four avenues where not only nerves, but blood supply could enter.

The value which the essayist attributes the use of antiseptics I am glad to say is being thoroughly recognized and it is a fact which cannot be too thoroughly recognized. Dentists are too apt to look upon themselves as mere repairers of decay; what they will do in the future, even more than they do now, will be to prevent decay.

Among the various points made by Dr. Register,

Dr. Sanger.

he spoke of the absorption of animal matter by vegetable matter. There are one or two remarkable cases which have been seen in England which I think are worthy of note.

At the place which was the home of Cardinal Woolsey there is a grapevine which has a national reputation because of its size; they have a practice there every few years, when the small twigs show signs of lack of nourishment, of planting the body of a cat at the roots of the vine, and it is found that the cat's body is entirely absorbed by the vegetable.

On the estate of the Marquis of Bradalden, on Loch Tay, Scotland, there is the second largest grapevine in the United Kingdom, and there the same practice is pursued with very great benefit.

These instances are simply of interest as bearing out the thought embodied in the point made by Dr. Register. The human teeth seem to be the only organ in the human body, almost where the case is parallel.



Injunction Granted.

Copy of Judge's Decision.

IN CHANCERY OF NEW JERSEY.

Between

The New Jersey State
Dental Society,
Compl.,

vs.

The Dentacura Company,
Defdt.



On Bill.

Mr. Halsey M. Barrett, for C. } Argued Oct. 10, 1898.

Mr. Edward A. Day, for D. } Decided Oct. 28.

STEVENS, V. C.

The complainant, an incorporated society, files its bill against the defendant to restrain the publication of extracts from a report made by a committee of the complainant. The report is an original essay on the care of the teeth and the best means of preserving them. Among other things it deals with the subject of tooth powders and pastes and in several passages commends the paste made by the defendant; the report, signed by five dentists, members of the society, was read at a meeting thereof held at Asbury Park, in July last. After having been read it was, in the language of the bill, "then discussed and on motion accepted by the society and handed by its chairman to the secretary of the society, to be retained by him as the property of and a part of the records of said society and said meeting."

The report with other reports and papers of the society was afterwards handed to a representative of a magazine of dental literature known as *ITEMS OF INTEREST*, published monthly in New York. The report in question has not been published in this magazine. It stills remains in manuscript.

Application was made by a representative of the defendant company to an officer of the complainant society for a copy. Failing to get it from him, he procured a copy from a person connected with the magazine and then proceeded to use extracts from it as an advertisement of the paste

"Dentacura." It is not pretended that either the copy was procured or the advertisement made by authority or permission of the complainant. On this branch of the case there can be no doubt. The manuscript was the exclusive property of complainant, and neither it nor extracts from it could, against complainant's consent, be used to advertise the wares of defendant.

The defendant, however, grounds his case, principally, on certain facts appearing in the answering affidavit of Mr. Lathrop, general manager of the Dentacura Company. After deposing that he (Lathrop) was invited by the complainant to make an exhibit of his wares at the meeting, which he and other exhibitors did, he paying \$12 for the privilege, he proceeds as follows: "And deponent further says that the several sessions of the said annual meeting were open and public and that the general public was admitted thereto and many hundreds of people outside of the dental profession were in attendance and that the proceedings of the society, the readings of essays and the reports of committees were conducted in the presence of the general public, and that the report of the committee mentioned in said bill and hereafter mentioned was read openly at said meeting and in the presence of the outside public *and that many persons not connected with the society were present when the said report was made.*" It is not distinctly averred that Mr. Lathrop was one of the persons who was in attendance when the report was read. As he swears, however, that "he attended the annual meeting of 1898," I will assume that he actually heard the report. The defendant's insistence is that the reading at this meeting was a publication and that the report, or its contents, thereafter became public property, which every one was entitled to make use of as he saw fit.

The Law as to Literary Property. The law respecting the ownership of literary property is entirely settled. It is thus stated by Vice-Chancellor Van Fleet, in *Aronson vs. Baker* 16 *Stew.*

366: "The right to literary property is just as sacred and just as much entitled to the protection of the law as the right to any other kind of personal property. . . . The established rule defining the rights of the owner of such property may be stated as follows; every new and innocent product of mental labor which has been embodied in writing or some other material form, while it remains unpublished, is the exclusive property of its author entitled to the same protection which the law throws around the possession and enjoyment of other kinds of property."

Public Reading Not Publication. That the manuscript and its contents were, in the first instance, the exclusive property of complainant does not therefore admit of doubt. The question in dispute is whether they have been so published as

to have become the property of the public. As defendant does not pretend to claim by private transfer to itself, it must show title in the public of which it is a member. The burden of proof is on the defendant. It must show *affirmatively* that what was once the complainant's has now become common property. In this I think it has failed. Mr. Lathrop says that the report was read in the presence of the public and that many persons not connected with the society were present. But who these persons were and under what circumstances they attended does not appear. They may have been, consistently with the facts stated, exhibitors who paid a fee, in which case they would stand much in the position of persons admitted to a theatrical performance or a lecture, on payment of a fee. In such case, there is no dedication of the play or lecture to the public generally. *Tomkins v. Hallock* 133 Mass. 32. *Palmer v. De Witt* 47 N. Y. 532. *Abernathy v. Hutchinson* 3. L. J. Ch. 209. *Caird v. Sime* 12 App. Cas. 326.

There is no averment that a public meeting was called to hear the report read. There is no averment that the general public were by any formal act of the society or its officers *invited* to be present. All that is fairly deducible from Mr. Lathrop's statement is that at the regular annual meeting, some persons, not members, were not excluded from its sessions; in other words, that its doors were not closed upon them. *Caird v. Sime* (*supra*) was much relied upon by defendant's counsel. It was the case of a professor of a public university who delivered lectures to students, one of whom took notes which he attempted to publish. Lord Halsbury applied as the test of decisions the nature of the lecture, the circumstances of its delivery and the object with which it was delivered. In the course of his judgment he says, "whether the limitation of the right (ie) the right of some person other than the lecturer or preacher, arises from implied contract or from the existing relation between the hearers and the author, it is intelligible that where a person speaks a speech to which all the world is invited, either expressly or impliedly, to listen, or preaches a sermon in a church, the doors of which are thrown open to all mankind, the mode and manner of publication negative any limitation." The reason must be that the speech is spoken or the sermon preached directly to what he calls "all the world" and that they are intended primarily for the benefit of all the world. But the decision in that case was that the professor's lecture was not primarily intended for the benefit of all the world, but for the benefit of the students only, although indirectly, all the world might ultimately reap the benefit. It seems to me that the case in hand presents a situation similar in principle. The report was read not to or for the benefit of the public generally, but to, and for the benefit of the society. It was "accepted" not

by the public, but by the society. It was a professional essay intended, primarily, for professional men. The views embodied in it might or might not be approved by the members of the society at large. Now to assert that the mere reading of this report to the society by the committee (and they had no authority to report to any one else) in the presence of certain outsiders, was a dedication of it by the society to the public, seems to me to be unreasonable. The members of the society, would not, as men imbued with the scientific spirit, be likely to stamp with their approval, views or assertions which they had not as yet had the opportunity to test or consider. The circumstances of the delivery and the object in view rather rebut than sustain the inference of a dedication. Furthermore, the society did not approve the report. All they did was to accept it for the purpose of putting it on file and then to discuss it. They came to no determination as to its merits. They neither approved nor disapproved it. How then can we fairly infer from what took place an intention to make public with a view to the public benefit, ideas and conclusions which they were not then prepared to endorse. The mere presence of auditors is not according to the cases, a decisive test. If it should be held to be, then any person present at a corporate meeting by the mere sufferance of the corporators, could thereafter publish its proceedings against their will for his own pecuniary benefit, if he could only in some authorized way get possession of a copy of them, or could by an effort of memory recall them. Taking the facts to be as we find them stated in the affidavit of Mr. Lathrop proof of dedication is therefore lacking. But more than this, Mr. Lathrop swears in a subsequent passage, that he has been informed "that it was the intention of the officers of the said society to disregard the recommendations of the said committee in its said report and not at any time to publish said report or any extracts therefrom relating to Dentacura and that this deponent has endeavored to obtain permission from said society to quote from said report, but that the officers of said society refuse entirely to permit this deponent and his said company to make use in any form of said report even so far as to announce that in said report Dentacura 'was recommended.'" Here is an affirmative evidence of an intention not to publish.

The complainant is entitled to a preliminary injunction. I may add that the case is now before me on ex parte affidavits only, and that all that is decided is, that on these affidavits, defendant has failed to show a title in himself or in the public.

A true copy,
L. A. THOMPSON, Clerk

Georgia State Dental Society.

Discussion of Dr. Johnson's Paper.

I cannot too strongly indorse the point of thor-

Dr. Thompson.oughly and equally heating the porcelain and metal.

If the porcelain is heated before the metal, cracked porcelain will result. Another point I want to speak of is the use of teeth with vertical pins instead of horizontal. I think the former are from four to ten times as strong as the latter. I have noticed that in nine cases out of ten the pins are horizontal. I notice that I have less breakage since I adopted the vertical pins.

Mr. Chairman, if you will let me back the teeth,

Dr. Sid. Holland. you may let whoever pleases do the soldering, and

I warrant you there will be no cracking. The trouble is, that some practitioners take hold of the pins too near the backing, thus laying too much strain on the porcelain. If, in bending the pins, they took hold of them nearer the ends they would have less cracked porcelain.

Dr. Holland made a good suggestion—placing

Dr. Crawford. the stress on the pin instead of the porcelain. Particularly is this true with gentlemen who try to use

24k. plate. I want to make a little suggestion to help out those who do crown and bridge work. We have in our scrap-boxes, more or less scrap-gold. We get only 75 cents a pennyweight for these scraps, while we give from 95 cents to \$1.05 a pennyweight for the solder. Now, in adjusting the backing, be careful to remove any overlap; and, in order to lessen the danger of fracturing the porcelain, take a little piece of gold from among these scraps and place it over the pins. Then you can hold the backing in position until the solder flows in. I would like to emphasize the importance of locating the holes properly; if this is not done there is danger of the solder passing through and affecting the tooth detrimentally; but if you have this accurately adapted you have two thicknesses to go through, and, therefore, there is less danger of cracking.

Mr. Chairman, I have been under the impres-

Dr. Catching. sion for a long time that the artificial teeth made are too white for the Southern people. Our people tend

to the brunette type, and it seems that the teeth are made mostly for adaptation to the northern type. I would like to hear the opinions of others.

There are persons South who are as fair as those

Dr. Sid. Holland. North. It is hard sometimes to get teeth of the right shade. I have some in my laboratory almost black. We all know that the majority of people, if allowed to select teeth, would choose those whiter than their natural teeth were.

I do not think there is anything in what Dr.

Dr. Crawford. Catching suggests. I don't believe there is any difference between the color of the teeth of the people North and South. We all know, as a patient grows older, the teeth become darker; and it is better to use teeth too dark than too light.

Clinics

Dr. Catching demonstrated a practical method of extracting an impacted third molar, growing horizontally against the second molar, which was to cut off the coronal surface of the impacted tooth with a disk where it was in contact with the second molar. It should be left in this condition until, from further eruption, it resumes its former position, when another slice should be removed from it, when it will again grow forward. Then cut away the bone overlying the roots of the tooth, take hold of it with a pair of lever forceps, and you can turn it up almost without effort. It would be impossible to extract it in any other way without fracturing it.

Dr. Catching. Dr. Crawford will now demonstrate his method of taking impressions with modeling compound.

Dr. Crawford, Gentlemen, I think this is quite important just at this time. We always have had and probably always will have edentulous mouths. Therefore, it is well that we should understand the best means of taking impressions of those mouths; and we would get along better if we took those impressions in compound. I was just like most men in regard to compound, and when I first attempted to handle it I failed. I took it up and tried it again, and went along by degrees, until finally I began to see that there is more in the material than I had at first apprehended. I went to work and perfected it from my standpoint, until now I take more impressions with it than with any other material. There are some mouths in which nothing but plaster can afford good results, but in other cases compound will accomplish just as good, and in the majority of cases better results than any other material. Having determined to use compound, select the proper tray, being careful to see that it fits the ridge at all points. Everything being in readiness—the patient in the chair, the assistant in place, the saliva pump in working order—soften the compound so that it will adhere to the tray; take it in your fingers and model it to

the tray, using a little more than enough to fill the space, and when it is just warm enough to hold comfortably in your fingers, by the time you can walk from the laboratory to the patient the mucous membrane of the mouth will endure it readily. Place it in position at once, and then apply a big mass of bibulous paper, saturated in ice water, to the compound, and hold it there until it is cold. Keep this up for five to seven minutes, having the water-pump in the mouth. Finally relax the pressure and remove it, but to be doubly sure replace it and see that it fits the parts.

Do you consider it safe to depend upon modeling compound in taking partial impressions, where at some point a tooth or teeth touch the cup?

I think it is possible, but it is liable to cause trouble. In all uniformly hard edentulous mouths I like to use compound. In soft, mushy mouths, where you never expect to get a good impression, I prefer plaster.

Instead of taking an impression as Dr. Crawford said, with the compound or other material in the tray, and pressed to place, I have the patient bite upon it. I then have both hands free to apply the ice water.

Dr. Catching. Dr. A. M. Jackson will now demonstrate a flexible injection point.

This is a flexible joint for either an atomizer or hypodermic syringe—serviceable at any angle.

For Atomizer.—Remove the nozzle from end of tube, cut a section of small rubber tubing one and one-half inches long, place one end over the end of the tube, the other over the butt of an ordinary hypodermic needle, and your atomizer will be complete.

For Hypodermic Syringe.—Make fast the rubber tubing to the syringe and needle with small annealed wire when pressure is necessary. The section of tubing may be cut a convenient length to reach the place desired.

Dr. Jackson also described his method of making cones for sandpaper disks, on his laboratory lathe, using for the purpose ordinary spools, from which the thread had been removed.

Dr. Catching. Dr. Hinman will demonstrate a method of vulcanizing which has been successful in his hands.

In polishing vulcanite we usually begin with very fine sandpaper, following this with pumicestone and prepared chalk, applied with brush wheels, felt-cones and felt-wheels. We do very little file work.

Dr. Hinman,

Vulcanite.

After waxing and carving, we apply chloroform to the wax with a small wad of cotton, making a very smooth surface. When this has dried it is followed with a coating of sandarac varnish. This is done either in the case of plain or gum-section teeth. When the wax has been washed out silex, diluted with about two-thirds the quantity of water, is applied, and almost immediately rinsed out with water. You will see by examining this plate (exhibiting one as he spoke) that it requires scarcely any filling—and that only along the borders—no scraping, and but little polishing.

Dr. Catching. Dr. J. S. Thompson will demonstrate a method of strengthening base plates.

Dr. Thompson, Strengthening Plates. This (holding it up) is a perforated aluminum plate, used for strengthening rubber plates. It is soft enough to be pressed into place; after which it is placed in a swaging apparatus, and with a few strokes of a hammer it can be forced down. It can be used as a trial plate, and is very accurate in its adjustment to the mouth. After using it as a trial plate, put it back on the model and strip off the wax, or melt it out. It strengthens a plate wonderfully. It can be used either with a plaster or metal model, and the process for the two is very much the same. It can be done in thirty minutes. It is also an advantage where you wish to ligate it to the other teeth.

Dr. Catching. Dr. C. B. Colson will give a demonstration with the hypodermic syringe.

Dr. Colson, Hypodermics. First, I wish to call your attention to a hypodermic needle which is cheap and of much value to us. It is thoroughly antiseptic, and costs so little that it can be thrown away after being used. It is called the "Seamless Adjustable Needle," and comes in a little bottle containing one dozen, costing one dollar. The large end is held in a soft lead button which screws into the syringe, and there is no leakage. The needles are thoroughly cleansed before being placed in the bottle, and previously placed under 300° of heat. A needle, after being used, should never be placed in the bottle again; we are never justified in using the same needle twice. A more expensive needle can be used several times before being thrown away. Should the tube of the syringe become stopped up it can be cleansed by passing a wire through it. Always use small needles. By using large needles there is an enormous amount of regurgitation, but with small needles, no matter how hard the gum may be, there is no regurgitation whatever and the gum will receive all the agent which the apparatus can give it. When you enter the gum, use the pumping motion. Do not use a great quantity of the agent. Use a strong preparation and an infinitesimal quantity of it. This is the true secret of using the hypo-

dermic needle. With one and one-half minims of my preparation I can extract any tooth. Use the set-screw at the reverse end of your instrument. One turn gives a little less than two-thirds of a minim; two turns give one and one-half minims. As to the toxic effect of cocaine, it does not worry me at all, and no one need fear it if used according to my directions. It is true that decidedly ill results followed its use when first introduced, but this was due to ignorance and carelessness, and to the large quantity employed. If a patient comes to my office with a full stomach, and wishes me to administer chloroform, I decline; but, under the same conditions, my preparation has no toxic effect. There is no ill effect except a little lightness in the head and a little reflex of the spinal column, but these soon pass off. I always have pellets of amyl nitrite or a little whisky on hand, or spirits of ammonia. I also keep coffee at hand, and sometimes give a patient a cup of it before sending him or her home. Nitro-glycerine is also a fine heart stimulant. I have killed a dog with four grains of cocaine on an empty stomach, and with from eleven to fourteen grains on a full stomach.

Dr. E. D. Carpenter. Do you prepare this anesthetic yourself?

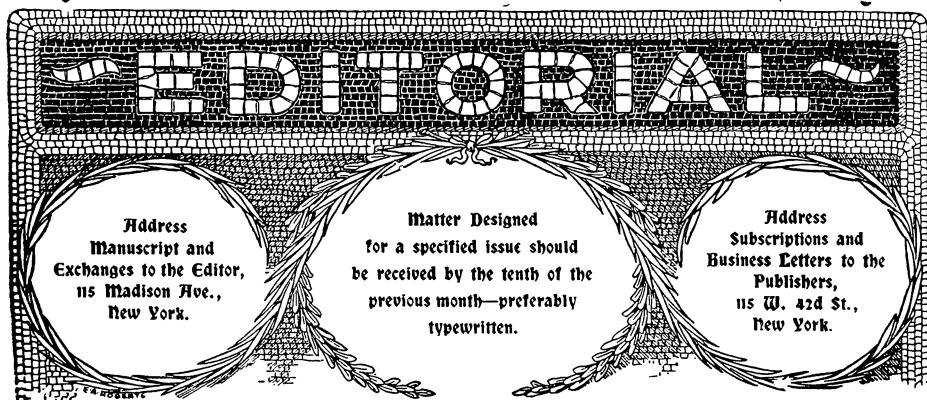
Yes; I have been using it for the last five years.

Dr. Colson. The formula is as follows:

Cocaine hydrochlorate	14 grs.
Listerine	20 gtts.
Fleming's tincture of aconite	10 gtts.
Rose water	½ oz.

About 4% cocaine—keeps indefinitely.





Thanks to the Profession.

With this number is completed the second volume of this magazine since the new policy was adopted. It may not be out of place, therefore, to examine briefly the results which have been attained.

It should be recalled that when the Consolidated Dental Manufacturing Company acquired the ownership of *ITEMS OF INTEREST*, by purchase, it was an established and successful dental periodical with a record of eighteen years. It would have been reasonable to believe that by a continuance of its past policy a continued success might be assured, a fact of some moment when it is considered that even at that time no dental publication in the world had a larger circulation. Under these circumstances I cannot but recognize that a great compliment was paid to me, when the present publishers accorded me the privilege of revolutionizing the policy of this old and popular magazine, placing at my disposal whatever funds might be required. I therefore thus publicly express my thanks to them for their confidence, as well as for their absolute non-interference with the management of the scientific pages which have been as unreservedly under my personal control as though the magazine had been my private property. By this means have I been enabled to conduct *ITEMS OF INTEREST* as untrammelled as though no trade interest were connected with its publication.

But my chief thanks are due, and are heartily offered, to those members of the profession who have made the new policy a success by contributing to our pages, and to that larger host who have encouraged us with their subscriptions.

**What the
New Policy
Involved.**

Few, perhaps, who have noted the changes have really appreciated what was involved, and it is with pride, perhaps pardonable, that a *résumé* is offered. The most conspicuous new feature has been our department entitled "Exclusive Contributions." Other dental journals have what is known as "Original Communications," among which are indiscriminately published such articles as are offered to them direct, as well as papers which, though not previously published, have nevertheless been made public, by having been read before dental societies. In ITEMS OF INTEREST such matter has been placed in a separate department, and only papers prepared expressly for this magazine have been published as "Exclusive Contributions."

Those gentlemen who may have had some experience in the matter of soliciting essays for society meetings will appreciate the work of procuring such material. Executive committee men know the difficulty of finding one paper per month for six or eight months of each year. These men will undoubtedly congratulate us upon having published 125 articles in our department of "Exclusive Contributions" in twenty-four months. Yet these figures, astonishing as they are, do not fully make up the record. In several other departments we have offered matter prepared expressly for ITEMS OF INTEREST, as follows: "Orthodontia," 10 articles. "Office and Laboratory," 18. "Incidents of Office Practice," 39. "Book Reviews," 39, a gross total of 231 original special papers. In addition to this we published 114 papers which had been read before societies, and 58 reports of "Society Discussions." Under the heading of "European Progress" we offered 31 important articles, with 19 more from American "Contemporaneous Literature." In the volume for 1897, there were 180 authors contributing, besides 70 reported in discussion, while for the current year there were 145 contributors, and 75 men in the discussions.

In the Editor's Corner have appeared a number of brief communications from various dental writers, which might be counted to still further

swell the total of original papers, since, though short, many have imparted most valuable and practical knowledge.

We have furnished the above material, covering 1,936 pages, and having 588 illustrations, at the price of two dollars, a record not equaled before in the history of dental literature. Is it strange under these circumstances that we have nearly ten thousand new names on our subscription lists? We think not.

The editorial policy has aimed toward the upbuilding of professional character, the support of ethical methods of practice, the encouragement of higher educational standards, the attainment of interstate comity in relation to dental laws and licenses, the improvement of the dental department of the Army Medical Museum, numerous donations having been obtained, and, finally, the influence of the magazine has been freely given to aid the passage of an amendment to the Patent Laws in the interest of the dental profession, an enterprise which promises to reach success at a very early date.

The final analysis of the above statement must be that gratifying as the result is, it could never have been accomplished without the co-operation of the dental writers, and the support of the readers, and, therefore, in behalf of the publishers, and for myself I thank the members of the profession for their generous support of the new policy.

RODRIGUES OTTOLENGUI.



The Editor's Corner.

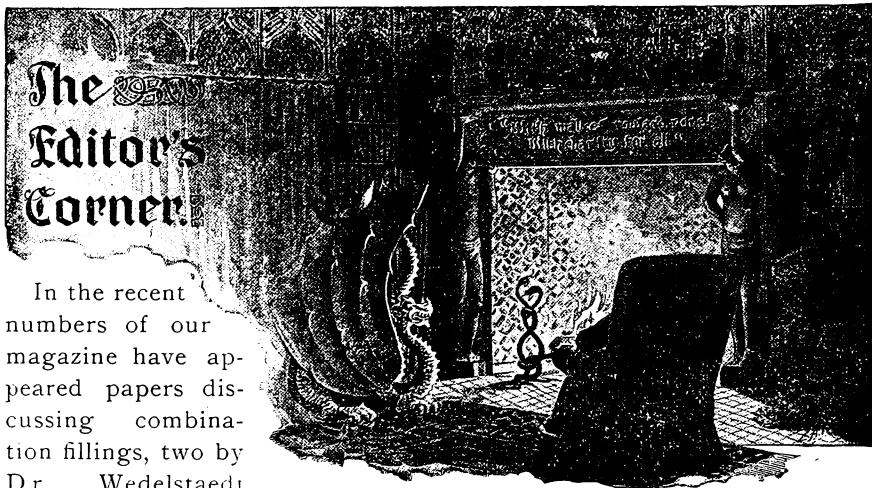
In the recent numbers of our magazine have appeared papers discussing combination fillings, two by Dr. Wedelstaedt

and one by Dr. Clapp, whose chapter in the "American Text-Book of Operative Dentistry" had been criticised. After the publication of the first criticism, Dr. Clapp sent to me a tooth partly filled with gold superimposed upon cement, asking that an opinion be expressed by me on the point at issue. This was cheerfully done with the result that in our last number (and in a private letter) Dr. Wedelstaedt expresses astonishment that, after examining the specimen forwarded by Dr. Clapp, any commendation of the "method" could have been accorded. This requires an explanation of my position.

Filling with Gold Over Cement. When a man undertakes the task of criticising adversely the work or opinions of others, he should be very sure that he thoroughly understands his own position and that he so expresses himself that others may also comprehend his meaning. Let us

see how Dr. Wedelstaedt measures up to this standard as a critic. The controversy on this point begins on page 647 of ITEMS OF INTEREST where he says:

"Men tell us it is easy to place cement into cavities and then pack amalgam upon and into it. I have made some experimental fillings of this kind in the cavity block. The cavities were not filled three-quarters full of soft cement, but about one-quarter. After the first piece of amalgam was crowded into the soft cement, the margins were most carefully cleaned, all excess amalgam and cement was removed and the packing of amalgam proceeded with, as has been suggested in this chapter. These fillings have been examined by twenty or twenty-five dentists who have, without exception, pronounced them perfect. And they are so, as far as one can judge from appearances. But examine



them with the one-inch power in the microscope and you have their true condition revealed. And what is it? Margins of cement."

In response to this Dr. Clapp sent to me a tooth partly filled with gold overlying cement, and after examining the same I published the following opinion (page 789):

"I must report that in the tooth sent his margins are quite free of cement. Furthermore, it seems to me that there is no reason to apprehend trouble of this character if the dentist is careful not to use an excessive quantity of cement. The method is good if properly applied."

This language seems simple, explicit and readily understood, yet Dr. Wedelstaedt has not comprehended it since he appears to attribute to the words a wider significance than they can possibly have. In connection with Dr. Clapp's specimen, all that I say is that "his margins are clean," whereas after examining the tooth with much more care than I, Dr. Wedelstaedt himself says (page 809), "The margins of this cavity are devoid of any cement."

Then Dr. Wedelstaedt goes on to inform us that the cement used by Dr. Clapp was in poor condition, porous, granular and cracked; that Weston's cement is worthless anyway; that cements in general have little "crushing stress," etc., etc., *ad nauseam*, and is "greatly surprised," that I overlooked all this. There need be no surprise as I could not have overlooked that for which I made no search. All that I examined was the margins, and in that respect Dr. Wedelstaedt admits all that was sought to be proven, viz.: that by this method clean margins could be preserved, a position which he antagonized in the first criticism.

My closing statement that "the method is good if properly applied" has no reference whatever to the specimen of Dr. Clapp's work, but is based upon a clinic experience in my own practice covering many years; an experience of continued success which engenders a faith in the method in no wise shattered by the pseudo-scientific investigations by which Dr. Wedelstaedt arrives at the conclusion that cements have little "crushing stress."

The method "properly applied" depends not upon the resistance which the material exerts under pressure, but solely upon its adhesive qualities as a cement. In short, the plastic is utilized to retain the substratum of gold in large cavities, so that the operator may readily attach the first pieces of gold, but after this is admitted, two points must be prominently observed. First, the cement may be relied upon for retaining the first layers of gold only, never for retaining the filling. (See methods of Filling Teeth, page 148). Second, whether much or little of the cement be used (depending upon the need of utilizing it as an insulator) that portion of the cavity which is to be occupied by the metallic

filling should be so fashioned that the forces of mastication cannot be transmitted to the underlying mass of cement. Thus it becomes absolutely immaterial whether the cement has little or great "crushing stress," if only the method be "properly applied."

Another pre-requisite of success as a critic is the

Dr. Wedelstaedt necessity of being one's self above criticism. The
Inconsistent. following quotations from Dr. Wedelstaedt show that he has not quite reached that pinnacle.

"It is a mistake ever to use soft cement for any other purpose than capping pulps" (page 642).

"— soft cement should be used for capping pulps almost exclusively" (page 809).

"In 1884 I had an assistant in my office who placed cement in every cavity that was to receive a metal filling. He argued so well that he finally succeeded in persuading me also to use this method. Within two years patients began to return with 'Sore teeth,' they called them. The fillings were removed and dead pulps were found. What cement was used may be asked? One of the best oxy-phosphates on the market then and at present. I firmly believe, I destroyed more pulps, or more were destroyed in the eighteen months that young man was in my office, than I have destroyed in all my practice with arsenic. I stopped the use of cement in the great majority of cases at once. Of course, I have a pulp die under my metal fillings now and then, but not more than one, where formerly I lost twenty-five. Now this has been my personal experience with cement. There are one or two men of worldwide reputation, who have had similar experience, or, at least, they told me that they had had, some ten years ago. I wish to ask, in view of this fact, how can I do otherwise than condemn combination fillings? Do we not know where we place gold crowns on teeth that have live pulps in them that it is but a question of time before the pulp dies?" (pages 813-814).

Pseudo-Scientific Dr. Wedelstaedt may take exception to my
Methods of alluding to his methods as "pseudo-scientific," for
Investigation. which reason I must explain that I criticise the method and not the man. We have too few men who are willing to devote time and labor to the thankless task of investigating dental methods and materials for discouragement to be offered to anyone who may have the willingness and ambition to undertake such work. But alas, the records of the past show that even the best investigators have been led into error through unbridled enthusiasm, with the worse result that the praise accorded to their alleged discoveries have tempted thousands to follow them blindly, with disastrous results. The profession have not yet forgotten "the ampu-

tation of pulps," "filing V-shaped spaces to prevent decay" and that more recent black spectre "copper amalgam."

Dr. Wedelstaedt does not tell us how he tested his cement fillings for "crushing stress." Presumably his fillings were made in the cavity block, and then removed therefrom and tested as we have seen Prof. Black test amalgam. Here then is the fallacy of this method, whether applied to cement or to amalgam. The result is not applicable to our practical work, because the *material is tested without the support that would be accorded to it by the cavity walls.*

To be more explicit; Dr. Wedelstaedt warns us against placing metal fillings over cement, because of the poor "crushing stress" of the latter. How can this be demonstrated, so as to be at all analogous to our daily work? A freshly extracted tooth (not a dried specimen) should be set into some convenient block and cemented therein. A cavity having parallel walls might then be drilled into the tooth, cement placed in the bottom of the cavity, and (for convenience) amalgam placed above it. When the amalgam shall have set, the test for "crushing stress" might be made. What would be the result? Force exerted upon the amalgam would be transmitted through it to the cement beneath, minus the loss by friction along the side walls, and the tendency in the cement to crush, would be materially affected by the strength of the restraining walls, since a yielding under pressure involves space in which the body of the mass may be made to assume a new form. In other words, the resistance to pressure, exhibited by an imprisoned mass depends largely upon the strength of the walls of the prison. To this there is a slight exception to be noted, the only one pertinent to this inquiry. In proportion as the mass is porous it may be crushed within unyielding walls.

Two statements in the above require further exposition. Dr. Wedelstaedt may argue that if it be admitted that pressure is transmitted through the filling materials to the cavity walls, it would follow that a tendency to crush would mean a tendency towards fracture of these walls. This is true, but it remains to be proven that such transmission of pressure against the walls is greater in a combination than in an all metallic filling, and whether true or not, there is no doubt that walls frail enough to be thus fractured should either be removed prior to filling, or else protected and supported by the arrangement of the metal portion of the filling.

The final point is that whereas it was stated that even in a perfectly cylindrical cavity the force against the underlying cement would be lessened by the friction of the metal filling against the rough side walls, so it is possible to so shape a cavity as to depart from the cylindrical form, by the judicious use of steps and other means, with the result that prac-

tically no pressure could reach the imprisoned mass beneath. In short it is all a question of the method being "properly applied" in connection with which the "crushing stress" of cement has little if any pertinency.

On the 24th day of October, 1898, there was organized at Carmi, Illinois, an association of the dentists of Indiana, Kentucky and Illinois, called the **New Tri-State Dental Society.** Tri-State Dental Association. It is hardly necessary to enlarge upon the importance of such an organization and the benefits which will accrue therefrom to the profession of that section collectively and individually. It is the earnest desire of the organizers that all reputable dentists in the three States should become members.

It is their hope to make this the largest dental society of the South and West. At each meeting clinics will be given by some of the best men in the profession, and the latest and most approved methods demonstrated. Next meeting at Henderson, Ky., on the second Tuesday in May, 1898. An interesting programme is nearly completed. The officers are: C. M. Meade, president, Carmi, Ill.; S. F. Guilmore, Princeton, Ind.; W. H. Broseman, Albin, Ill., L. A. King, Henderson, Ky., vice-presidents; A. J. Hovey, Mt. Vernon, Ind., treasurer; M. M. Haas, Evansville, Ind., purchasing agent; F. J. Raymond, Evansville, Ind., editor; R. H. Burks, Shawneetown, secretary.

Louisville College. The Louisville College of Dentistry opens on January 2, and as a number of students each year fail to enter upon their college studies in time to be matriculated at the Fall terms, the Faculty of the Louisville College desire to call attention to the fact that instead of losing a year such men will be received at their college between January 2 and 12.

Correction. Through an error, in connection with the publication of his paper, read before the New Jersey State Society, the home of Dr. W. G. Chase was given as Princeton, N. J., whereas it should have been Philadelphia, Pa.





A Manual of Dental Anatomy. Human and Comparative.

By CHARLES S. TOMES, M.A., F.R.S.

With 263 Illustrations. Fifth Edition.

P. BLAKISTON, SON & CO., 1012 Walnut Street, Philadelphia. 1898.

Although Mr. Tomes modestly entitles this work a mere manual of Dental Anatomy, yet it is the most scientific work extant on this subject at the present day. Considering that a volume of 586 pages cannot be very exhaustive, it is remarkable for the range of field which is covered and the comprehensiveness of all the subjects. The method pursued by the author, in the arrangement of his chapters, classification, bibliography, etc., is so excellent that it might well serve as a model for some of our American manufacturers of dental books which are so often sadly deficient in this necessary adjunct of a scientific work. Without going into detail of the various chapters, we would especially call the attention of American dental teachers to the large portion of the volume treating of comparative odontology. A careful perusal of these chapters will clearly indicate to them how great a field of dental education is too often left uncovered. It is to be hoped that with the increase in the length of the college course, more attention will be paid to this much-neglected theme. Certainly, no better text-book could be found for this purpose, and there is no doubt that if this important branch of dental education were properly taught, the scientific status of the American dental graduate would be much improved.

In reference to that portion of the work which treats of the teeth of man, very little adverse criticism can be made. The author is to be commended for his painstaking care in accurately setting forth the views of different authorities, even when not in accord with the same. One of the peculiarities of the work consists in the fact that the author clings to the use of the word *canine* instead of adopting the word *cuspid*. His views on the subject of enamel seem to conform entirely with those of J. Leon

Williams in that he avers an entire absence of any organic matter. He ridicules Bonwill's triangular conception of the form of the jaws and teeth claiming that it upsets the whole doctrine of evolution. Mr. Tomes, in speaking of the articulation of the teeth to the alveolar portion of the maxilla, adheres to the use of the term "gomphosis" in describing this attachment. It was to be hoped that he would discard the use of this word, which literally means "something chained or held immovable," while it is well known that the mobility of the tooth in the alveolar socket is not only a distinguishing feature of the teeth of man, but a very important attribute. Attention is called to this point because of the general misuse of this term by dental teachers. Mr. Tomes, although using the word, and describing it as "an attachment comparable to the fitting of a peg in a hole," immediately qualifies this definition by the following: "The bony sockets, however, allow of a considerable degree of motion, as may be seen by examining the teeth in a dry skull, the fitting being in the fresh state completed by the interposition of the dense periosteum of the socket. This latter, by its elasticity, allows of a small degree of motion in the tooth, and so, doubtless, diminishes the shock which would be occasioned by mastication were the teeth perfectly immovable and without a yielding lining within their bony sockets." This is nothing less than a contradiction of the meaning of the word "gomphosis." The importance which a proper understanding of the articulation of each individual tooth plays in the treatment of pericemental disease leaves here a small gap, which, it is to be hoped, the author will rectify in a later edition.

M. L. R.

Mechanical Practice in Dentistry.

By WILLIAM BOOTH PEARSALL, F.R.C.S.I., Etc.

With a Large Number of Illustrations Designed by the Author and Drawn by
J. M. KAVANAGH, R.H.A. and CHARLES RUSSELL, R.H.A.

And Many Other Engravings from New and Original Sources.

CLAUDIUS ASH & SONS, London and New York, 1898.

There is no work published during the past year that will afford the busy practitioner more entertainment and instruction, and at the same time arouse in the mind of the reader a stronger feeling of opposition than this production of Mr. William Booth Pearsall, of Dublin, Ireland.

The reputation which the author has made for himself as one of the leading British workers in the prosthetic specialty of dentistry is a sufficient guarantee that the student in this line of work will be enabled to acquire many useful methods and hints which are novel to most American dentists. Taken as a whole, the work compares unfavorably with the best American dental publications; at the same time, it records results which are superior to the general average of work done in the United States. Whatever Mr. Pearsall describes as his own particular method, contrivance, or machinery is especially interesting and instructive. His style is simple, clean and incisive; the only drawback, if it may be called such, is the strong feeling of jealousy expressed in the pages against American usurpation of British invention. A scientific author should at all times hold himself above the petty confines of localism and be truly international in spirit. An entire chapter is introduced to prove that Mr. Gartrell is not an American dentist and that the forms of removable bridge-work credited in "A Practical Treatise of Artificial Crown and Bridge-work" by George Evans to Dr. Parr, belong by priority of invention to Mr. Gartrell. The author, while speaking most favorably of removable bridge-work limits his descriptions entirely to this one form and is apparently ignorant of the fact that there are numerous methods of removable bridge-work much in vogue, that are greatly superior to those which he attributes to the inventive skill of Mr. Gartrell. In his general conclusions, as to the merits or demerits of varying modes of work, the author is in the vast majority of instances almost intuitively correct. This is well marked in his strong opposition to fixed and immovable bridge-work as is shown by the following quotation: "Were the same care and pains given to the construction and fitting of plates which we see given to the construction of bridges, more teeth would remain useful organs in the mouth than is the case with a very large number of bridges. It is a remarkable fact that many men practice bridge-work who are unable to make good plates in any material, yet who, nevertheless, have no hesitation about mutilating valuable teeth, if not destroying them." Another strong point is made when he says, "the advantages of allowing for 'buffer' or 'play' movement, when anchoring bridges, seems to have been largely overlooked in the books and papers on the subject." In speaking of "fastenings" (clasps), he clings to the antiquated doctrine that the clasp should accurately fit every portion of the tooth. Dr. Bonwill has done much for the preservation of anchor teeth when he demonstrated the detrimental results following such practice. One of the peculiarities of the book is the fact that while the author advocates a perfectly fitting clasp, yet, on page 107, in describing the disadvantages resulting from short stubby clasps, he uses a very logical argu-

ment which is equally applicable against the use of perfectly fitting clasps. A large portion of the book is occupied with the specifications, diagrams and minute explanatory details for fitting up a laboratory. He has described in this manner numerous varieties of work-shops and any one contemplating the appointing of a new laboratory will find the work invaluable for this purpose. The numerous illustrations throughout the book are especially praiseworthy for the originality of their conception and the careful regard for veracity; they are, however, abominably reproduced by the publishers. Another peculiarity of the book is the fact that the last third of it is entirely filled with illustrations of tools and dental supplies, which appear to be taken directly from the catalogue of the publishers' supply house, all of which is certainly very much out of place in a professional work.

M. L. R.

A Treatise on Plateless Dentures.

By C. A. SAMSIOE, Practising Dentist in Stockholm.

With Forty-Eight Illustrations. Translated from the Swedish by D. O. BELL.

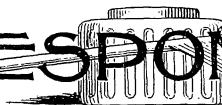
Published by the Author, Stockholm.

This is a small book of one hundred and fifty-eight pages well printed on fine paper with forty-eight photographic reproductions of actual cases. Whilst the work, unquestionably, represents a great advance in the literature of Scandinavian dentistry, and the author displays a marked familiarity with all the general literature on this subject, yet, it is difficult to discover a good reason for the translation of this work into the English language. Compared with work with which American dentists are familiar, it is crude, inartistic and possesses, at the same time, most of the bad features of what is known as "dirty" bridge-work. From a review of this treatise printed in "Nordisk Tandlaegeblad" the translation of which was kindly forwarded by the author, we make the following excerpt: "In this book there are no illustrations of fantastic operations such as are done *on paper* by so many authors, but the possibility of the work described is vouched for by the fact that the illustrations are made from photographs of work which has really been done." The insinuation conveyed in this paragraph that the Scandinavian dentists discredit the possibility of the reality of the finer operations of American dentists as illustrated in our literature, may have been the keynote

for the motive which prompted the translation. The strongest condemnation for the methods advocated by the author appears in the photographic illustrations taken from actual cases.

M. L. R.

CORRESPONDENCE



A Reply to Dr. Wedelstaedt's Answer.

To the Readers of the ITEMS OF INTEREST:

Before accepting as final the statements of Dr. Wedelstaedt in the September and November numbers of the ITEMS OF INTEREST, kindly read carefully Chapter XII. in Kirk's American Text-book of Dentistry. Very tr 'ly,

DWIGHT M. CLAPP.

Correction.

To the Editor of the ITEMS:

Sir—My attention has been called to the fact that I unintentionally misquoted from Dr. Wedelstaedt's paper published in the ITEMS for January, 1898, page 30.

In my paper (November ITEMS, page 832) I referred to a "mallet" weighing nearly three pounds; I should have written "blow" instead of "mallet."

Kindly give space to the above correction and oblige very truly

D. W. BARKER.





Central Dental Association of Northern New Jersey.

The Educational Meeting of the Year.

Science *versus* Empiricism.

On December 19 by special invitation **A. C. Hart, Ph. B., D.D.S., M.D.**, of San Francisco, Cal., will deliver a lantern lecture entitled, "Prevention of Decay of the Teeth," in which will be expounded the results of several years of investigation in order to discover a means so treating carious and semi-carious teeth so as to render them immune to future attacks of diseases engendering germs. This lecture will be profusely illustrated by lantern slides as well as the actual slides for examination with the microscope.

A Special Discussion

has been arranged, a number of prominent men having been supplied in advance with copies of the lecture, among whom are **T. Norman Broomell, D.D.S.**, Philadelphia, Pa.; **R. R. Andrews, D. D. S.**, Cambridge, Mass.; **X. U. Sudduth, M.D., D.D.S.**, Memphis, Tenn.; **Samuel A. Hopkins, M. D., D.M.D.**, Boston, Mass.; **Geo. S. Allen, D.D.S.**, New York City; **M. L. Rhein, M.D., D.D.S.**, New York City; **R. H. Hofheinz, D.D.S.**, Rochester, N. Y.; and others to be announced later.

The meeting will occur at 943 Broad street, Newark, N. J., at 8.10 p. m., Monday, December 19, preceded by a dinner at 6 p. m. In consequence of the importance of this occasion dinner will be served with absolute promptness.

All members of the dental profession are cordially invited; those desiring seats reserved at the dinner (one dollar per plate) must notify Dr. Chas. A. Meeker, 29 Fulton street, Newark, N. J., by noon of Saturday, December 17. Trains on Central R. R., Liberty street, New York, land within three blocks of meeting place. Leave New York at 4.20, 4.53, 5.10, 5.23 p. m.

Mark the Date in Your Appointment Book.

Massachusetts Board of Registration in Dentistry.

A meeting of the Massachusetts Board of Registration in Dentistry, for the examination of candidates, will be held in Boston, Monday, December 5, 1898, at 10 a. m., at Harvard Dental Infirmary, North Grove street. Examination in Operative Dentistry at 11 o'clock.

Each candidate must come prepared with rubber-dam, gold and instruments, to demonstrate his skill in Operative Dentistry. Anyone who wishes may bring his patient. So far as possible patients will be furnished.

The theoretic examination will include, Anatomy, Physiology, Histology, Chemistry, Pathology, Materia Medica, Operative and Prosthetic Dentistry, Mechanical Dentistry, Therapeutics, Surgery, Metallurgy, Orthodontia, Anæsthesia and Crown and Bridge Work.

All applications, together with the fee of twenty dollars, must be filed with the secretary of the board on or before Nov. 28, as no application for this meeting will be received after that date.

G. E. MITCHELL, D.D.S., Secretary.

25 Merrimack street, Haverhill, Mass.

The National Association of Dental Examiners.

The fifteenth annual session of the National Association of Dental Examiners was held in Washington, D. C., the 13th, 14th and 15th of October. The following members were elected as officers to serve for the new year: President, George L. Parmele, D.D.S., Hartford, Conn.; vice-president, C. C. Chittenden, D.D.S., Madison, Wis.; secretary and treasurer, Charles A. Meeker, D.D.S., Newark, N. J.

The president appointed as the Committee on Colleges, G. Carleton Brown, D.D.S., Elizabeth, N. J.; J. A. Hall, D.D.S., Collinsville, Ala.; C. C. Chittenden, Madison, Wis.

Southern Kansas Dental Association.

The Southern Kansas Dental Association will meet in Wichita, December 27, 28 and 29, 1898.

National School of Dental Technics.

The next annual meeting of the National School of Dental Technics will be held December 28 and 29, 1898, beginning promptly at 10 a. m. with the address of President C. V. Black. The partially made-up programme is as follows: The Value of a Graded Course of Study and Uniformity Among Dental Schools, by G. V. I. Brown. Reports of Syllabi Committees: Operative Technics, by T. E. Weeks. Prosthetic Technics, by N. S. Hoff, Symposium of Teaching Methods, by W. H. Whitslar, C. H. Wright and H. H. Buchard. Steel Technics, by C. H. Wilson. Teaching Cavity Preparation, by C. N. Johnson. Master of Exhibits, Grant Molyneaux.

Discussion on the papers will be opened by prominent teachers. It is hoped that all interested in the newest methods of teaching in dental schools will be present. A profitable time is promised. Exhibits of class work will be interesting. The profession is cordially invited to attend.

D. M. CATTELL, Sec.-Treas., Chicago, Ill.

Meeting held in the Club Rooms of the Grand Hotel, Cincinnati, O.

Oregon State Board of Dental Examiners.

The Oregon State Board of Dental Examiners met and organized Friday, Oct. 14. T. L. Micklin, D.D.S., president; Morris R. Cox, D.D.S., secretary and treasurer; J. M. Keene, D.D.S., and W. W. Contris, L.D.S., constitute the board. They adjourned to meet November 28 to examine all applicants for certificates.

W. W. CONTRIS,
Salem, Ore.

Members of the Class of '89 Philadelphia Dental College.

Many of the members are desirous to celebrate the tenth anniversary of our graduation, at the house of our Alma Mater, in Philadelphia, next March or April. Kindly inform the undersigned if you would attend—or send him any suggestion as to form of celebration.

ANDREW J. FLANAGAN,
Springfield, Mass.

“One of the old Ex. Com.”

Province of Quebec Dental Association.

The triennial meeting of the Province of Quebec Dental Association was held in Montreal on the 21st of September. The meeting was a lively one on account of the organization that had been made against the old board. The reform ticket proved successful, as the following were elected to serve on the board for the next three years:

Dr. E. B. Ibbotson, president; Dr. Jos. Nolin, vice-president; Dr. E. Dubeau, secretary; Dr. V. A. Stevenson, treasurer; Dr. W. J. Kerr, registrar; Dr. J. G. Gardner and Dr. G. E. Hyndman.

The next examinations for license will be held in April, 1899.

E. DUBEAU, Secretary,
391 St. Denis street, Montreal, Que.



Dr. S. L. Edwards.

Dr. Surry L. Edwards, of Des Moines, Iowa, the veteran dentist, died recently at his home after a short illness. He had been ailing for several months, but was confined to the house only two weeks.

He was born in Gilford, Vt., seventy-one years ago last March, and had lived in Des Moines since 1874. He leaves several sons, the eldest being associated with him in dental practice.

Dr. Edwards entered the McKendree College in 1847, and graduated. He taught public schools for five years, and then began the study of dentistry, entering practice of that profession in Griggsville, where he was married in 1855, to Emma A. Dickinson. Dr. Edwards was a member and an officer of the First M. E. Church for many years. He assisted in the formation of the church and had ever been an active, conscientious worker for its upbuilding. Although a man of retiring disposition, and one who took no part in public affairs, he was always a close observer of the progress of the city and of all things looking to a betterment of society.

The funeral was held from the First M. E. Church.

Items of Interest

A Monthly . . .
Magazine of
Dental Art, Science
and Literature . . .

Published by Consolidated
Dental Manufacturing . . .
Company, 115 West 42nd
Street, New York

Subscription, \$1.00 per year

Entered as second class matter
at the New York, N. Y., post office

Vol. XX — No. 12
December
1898



R. Ottolengui, M.D.S.
Editor
115 Madison Ave.
New York

JUST ONE YEAR AGO, we explained to our readers that by reason of the already large and constantly increasing number of subscribers to **ITEMS OF INTEREST**, and consequent additional cost of producing the magazine, each monthly edition would be confined closely to the number of copies actually subscribed for; with the caution that delay in sending renewal might result in failure to receive the earlier numbers.

RESPONSE WAS PROMPT; so prompt in fact that during the month of December, many thousands of renewals were recorded, thereby saving a majority of our subscribers the annoyance incident to a delay in receiving the magazine,

WE WERE GRATEFUL for your promptness. It avoided mistakes in our mailing list by preventing transfer of names, and saved us an immense amount of bother. In dental journalism, "ITEMS OF INTEREST" is synonymous with "PROGRESS." **ITEMS OF INTEREST** for 1899 will be better than ever. It never retrogrades. For twenty years it has been advancing all the time. For more than three years it has led all others in popularity. Its contents are bright, readable, and well illustrated. It gives the news in dentistry. Yearly subscription price to U. S., Canada and Mexico, only \$1.00. To foreign countries of Universal Postal Union, \$2.00.

RENEW YOUR SUBSCRIPTION NOW, before it is forgotten. A subscription blank accompanies this copy. If it is your custom to subscribe through a dealer, we will be pleased to receive your renewal that way. Remit by P. O. money order, check or draft.



Vol. XX—No. 12

This number of ITEMS OF INTEREST completes its Twentieth Volume. It also completes the second volume produced under the present editorship and management, and in the magazine's present form.

From the standpoint of publishers, we feel grateful to the Dental Profession for the very generous support the magazine has received for the past two years, and especially during the year just closing. Gradually, from month to month, numerous new subscriptions and renewals of old subscriptions have been received, until now the subscription list of ITEMS OF INTEREST contains the names of nearly three-fourths of all of the practicing dentists in the United States, besides a large number in Canada, Mexico and other foreign countries. Several thousands of dentists, who had not previously received the ITEMS, are recorded as subscribers to its XXth volume, while the number of subscriptions not renewed is extremely small.

Elsewhere, in this issue of the magazine, may be found a brief review of the work that has been accomplished for ITEMS OF INTEREST during the past two years. That the showing is creditable, we admit; but the good work will not cease. Each succeeding year must exhibit a marked improvement in the magazine. Expense has not been and will not be spared in an endeavor to make the magazine from every point of view the very best publication devoted to the science of dentistry.

Notwithstanding the improvements already accomplished, the subscription price remains as before, One Dollar a year. (Except to foreign countries, as explained below.)

If your subscription expires with this number, the publishers will earnestly appreciate its prompt renewal.

“Items” to Foreign Countries

For several months past each issue of ITEMS OF INTEREST has contained the notice that the subscription price of the magazine postpaid to foreign countries would be advanced from \$1.50 to \$2.00, on January 1, 1899. This action is necessary by reason of the increased size and weight of the magazine, and consequent cost of forwarding same. The advance is very small, and the new rate is even considerably less than the subscription price of a majority of other smaller dental journals. We trust our friends in foreign countries will see that their subscriptions are promptly renewed. This may be done through any responsible dealer; or subscribers may remit direct to our New York office, by postal money order to the value of Two Dollars.

Germicidal Soap.

(Formula of Dr. Chas. T. McClintock.)

Invaluable for the preparation of solutions for anti-septically cleansing the hands and instruments of the dentist.

Germicidal Soap has been thoroughly tested by the originator with pus, cholera, typhoid and diphtheria germs, and anthrax spores. In none of the hundreds of experiments has a single one of the germs survived *one minute*. As a rule the tests were made with solutions containing one per cent. of the Soap. The Soap contained two per cent. of the antiseptic, so that the tested solutions represented, in each 5000 parts, only one part of the antiseptic material.

Tested in comparison with the above, other antiseptics in the same percentage of solution, during the same time, with similar cultures of germs, etc., permitted bacterial growth as follows: Mercuric chloride, after 5 minutes; Mercuric iodide, after 15 minutes; Corrosive-sublimate soap, after 15 minutes (as long as tested); Carbolic acid, 5-per-cent., after 15 minutes (as long as tested). All evidence seems to indicate that, in proportion to the amount of antiseptic material contained, this Soap is easily the most powerful germicide and antiseptic yet discovered.

It does not coagulate albumen, nor affect nickeled or steel instruments. It does act on silver and aluminum.

The Soap is colored blue to indicate its toxic nature, in accordance with the precedent established in the coloring of our poisonous Antiseptic Tablets, etc.

Per dozen cakes, three cakes in a box, . . . \$2.25
Empty Celluloid Case, for holding one cake,25

Reprints of Dr. McClintock's original paper and other literature covering this subject will be furnished on application.



Parke, Davis & Company,

Home Offices and Laboratories, Detroit, Michigan.

Branches in New York, Kansas City, Baltimore, and New Orleans.

PLASMA NASAL TABLETS.

PERHAPS no one has a better opportunity of detecting the presence of nasal catarrh in those with whom he is professionally brought into contact than the dentist, and very frequently one may earn the good-will of his patient by recommending some effective remedy for this deplorable condition.

Plasma Nasal Tablets form an ideal improvement over both Seiler's and Dobell's solutions for cleansing purposes. One tablet added to two ounces of lukewarm water makes a solution of about equal specific gravity with blood serum, and in the proper employment of this solution undue osmosis and endosmosis in the nasal cavity is avoided. The addition of the menthol will be appreciated for its well known soothing effect.

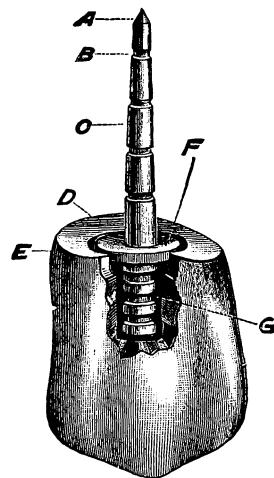
Bottles containing 1000 . . . per bot.	\$0.70
Bottles containing 500 . . . per bot.	.38
Bottles containing 100 . . . per bot.	.10

Parke, Davis & Co.,

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Branches in New York, Kansas City, Baltimore, and New Orleans.

DR. CHAS. A. DAVIS' PATENT SHOULDER PIN CROWN.



In the enlarged illustration A shows the point of the Davis pin, which is tapered so as to enter the canal readily, and B, one of the corrugations as they appear in the pin; D illustrates the elevated rim of the crown, the top of which is concave; F, the shoulder of the pin, which is in the shape of a concave flange and permits of a secure cement fastening to the root; and G, the portion of pin which is inserted into the crown, showing corrugations, etc.



6



7



8



Dr. Chas. A. Davis' Patent Shoulder Pin Crown.

In use on single roots this crown has many advantages. Every dentist knows of the difficulties incident to making a perfect fit of a porcelain crown to a natural root, "when the pin is baked into the crown." No matter how careful he may be in grinding up the crown for the case in hand, the pin is always in the way to prevent that accuracy in the preparation of the crown necessary for the best results. With the Davis Crown the pin is an afterthought. The crown can be handled in every convenient manner. You can grind it in any direction, and a perfect fit can be made in half the time as with one of those furnished with the pin fastened in. Then, after the crown is ground to fit the root, the pin can be set and cemented in any position required.

By avoiding the necessity of baking the pins with the crowns in the process of their manufacture, we are able to use a metal pin many times "stronger and stiffer than the platinum pin." This overcomes the stretching and bending of the pin after the crown is "set," and we can therefore use a smaller pin, and avoid cutting away the dentine, thus obtaining more durable adjustment.

In preparing a root for a Davis Crown an ordinary reamer is used, as Fig. 1 illustrates. After the root and crown are ground to fit, the pin is cemented into both, as is shown in Figs. 2 and 3. Any good cement may be used for this purpose, and will retain the

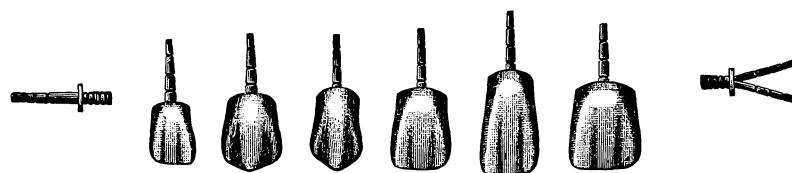
crown securely. The concave shoulder of the pin gives great strength to both root and crown, as well as assisting in joining both securely together. The great strength and rigidity of these pins will allow of their being filed and cut to suit special cases, without impairing their strength for all practical purposes. If a flat pin is wanted, the pin may be filed to that shape, and it will still be adequately strong. Fig. 5 shows how the pin can be split and adapted for bicuspids. When it is deemed necessary to band the crown onto the root, it can be practically done, as Figs. 6 and 7 illustrate.

The "quality" and "texture" of the Davis Crown is very similar to that of English teeth, as the crown can be ground with a fine emery wheel, and, by using a little putty powder on a felt wheel, "can be polished" equal to its original appearance.

The "character" of the Davis Crowns is remarkable. In cutting of the moulds for their production nothing has been spared to make them faithful reproductions of natural teeth.

The Davis Crowns are manufactured in a great variety of forms and sizes, in centrals, laterals, canines and bicuspids. If desired, can be furnished with the pins already mounted. A very good assortment can be had in the mahogany case furnished, which contains one hundred of various kinds, sizes and shades.

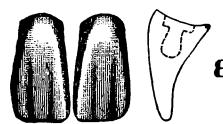
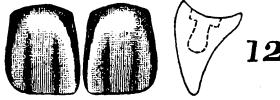
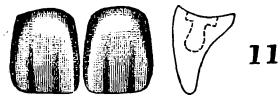
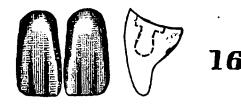
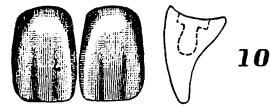
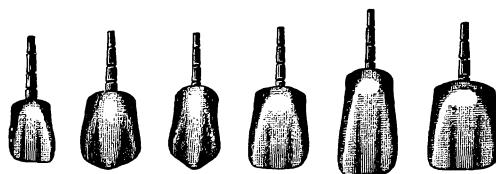
DR. CHAS. A. DAVIS' PATENT SHOULDER PIN CROWN.



PRICE OF THE DAVIS' CROWN:

Crown, complete with Composition Pin (Inserted or Separate, as desired). Each	40 cents
Crown, with Split Pin, as illustrated.....	Each 45 cents
Mahogany Case Containing 100 Crowns.....	\$35.00

DR. CHAS. A. DAVIS' PATENT SHOULDER PIN CROWN.

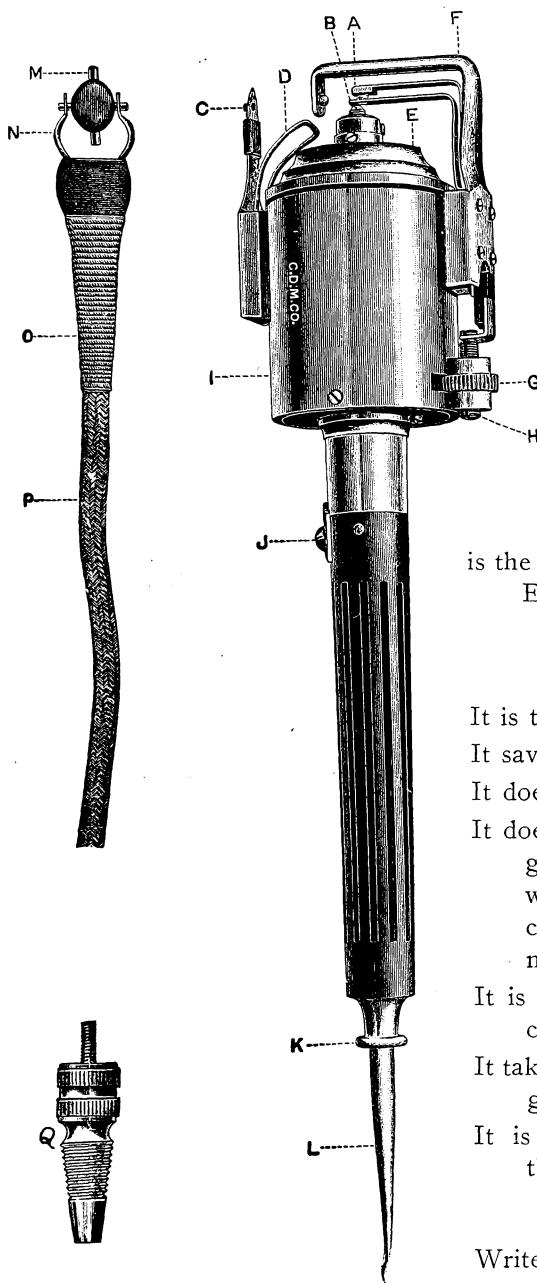


With the centrals, laterals, canines, and bicuspids we can make up sets of 2s, 4s, 6s and 10s if desired.

We are constantly adding to our supply and variety of moulds.

THE BARNES-SKINNER ELECTRIC DENTAL MALLET.

(Patented Sept. 26, 1895.)



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With Dry Battery, complete,
\$35.00.With Fluid Battery, complete,
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complete for 110 volt
Street Current,
\$45.00.

WHY

is the Barnes-Skinner Mallet the best
Electric Plugger ever made?

BECAUSE

It is the most simple and compact.

It saves the most time.

It does the best work.

It does not require a special form of
gold filling, but can be used as
well with any gold possessing the
characteristics that hand instru-
ments require.It is constructed on scientific prin-
ciples.It takes the regular cone-socket plug-
ger points.It is used by prominent operators
throughout the world.Write us for information about the
Mallet.

FIG. 1.

Good Seed

The contents of a handy little volume entitled:
Popular Essays upon the Care of the Teeth and Mouth
 By VICTOR C. BELL, A.B., D.D.S.

Lecturer to the Public Schools on Hygiene of the Mouth and Teeth under the auspices of the Board of Education of New York City,

"This work is the outgrowth of the observations made in daily practice. For years the author has noted and deplored the lack of information upon dental subjects that is displayed by people of otherwise great general intelligence. He candidly believes that were the information contained in this little book generally diffused and its teachings well followed, not only would very much of pain and suffering be prevented, but the general term of human life would be perceptibly lengthened."

Dr. Bell's work answers the queries of your patients for you. He educates them to a better understanding of dental subjects. He makes them appreciate good dental work. Distributed amongst your patients it will indeed be good seed

Well Sown

and both patient and dentist will be greatly benefited.

** Dr. Victor C. Bell, of this city, has published a popular treatise on a subject which is engrossing interest to every mother. The work is the outgrowth of practical experience, and the author justly says that for years he has noted and deplored the lack of information upon dental subjects that is displayed by otherwise intelligent people. He has supplied a REAL WANT by his lucid and well considered work.

June, 1894

Babyhood, New York

Price, Cloth, \$1.25. Paper, \$1.00.

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Information \$1.00	\$1.50	Harper's Magazine	4.00 4.25
A monthly magazine devoted to oral Hygiene and general information of Interest to Dentist and Patient. First number Oct. 1, 1898. L. P. Bethel, D.D.S., M.D., Editor		Judge	5.00 5.50
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Address all communications and make all remittances payable to

Consolidated Dental Mfg. Co., Publishers,

115 West 42d Street, New York

Writing from Marshall,
Texas, Nov. 3, 1898, Dr.
LINDLEY H. HENLEY
says:—

"I have nearly all of
"the crown and bridge
"systems here in my
"office at present, in-
"cluding the and
"the and others;
"and can say that the

Lowry System

"is by far the best and
"most complete machine

For Crown and Bridge Work

"I have yet seen. At first I did not see through it, but now I
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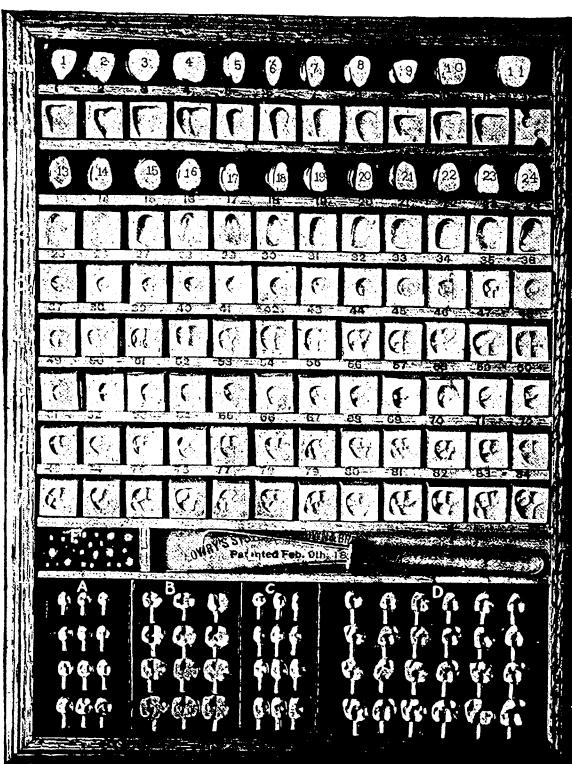
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Have referred to the LOWRY SYSTEM in the highest terms of praise. Its marvellous simplicity, together with the perfection of its several parts, has placed it far in advance of all the various outfits for similar work yet to be had.

The price of the complete system, including all dies and counter-dies, trial caps, soldering plyer and stamper, in suitable case, is \$20.

Dentists can obtain the Lowry System from the home office or any of the branch houses of the Consolidated Dental Mfg. Co., who is sole agent for its sale. Or it can be ordered through any of the numerous agencies of the Company in the United States, Canada, Mexico, or the Company's correspondents in foreign countries.

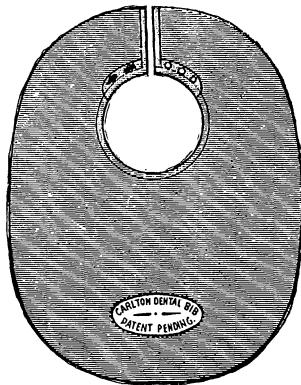
A handsome booklet, describing the outfit in detail, with suitable illustrations, forwarded upon request.



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COMFORTABLE



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This unique dental bib provides absolute protection to patients' neck and clothing. It is made from extra heavy Para rubber; has elastic neck contact, therefore fits any neck size without perceptible strain. The adjustable fastening at back is simple and effective. Fastenings are reinforced with cloth, and inside edges are double. Being of rubber, it is non-absorbent and exposed surfaces are readily cleaned. Made in Pure Gum or White Rubber.

Three Popular Sizes:

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Price, 75 Cents.	Price, \$1.00.
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Consolidated Dental Manufacturing Co.

CLEANLY

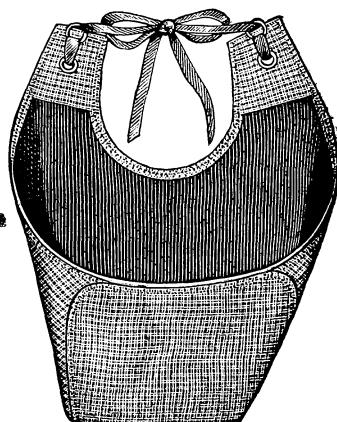
SOLE AGENT

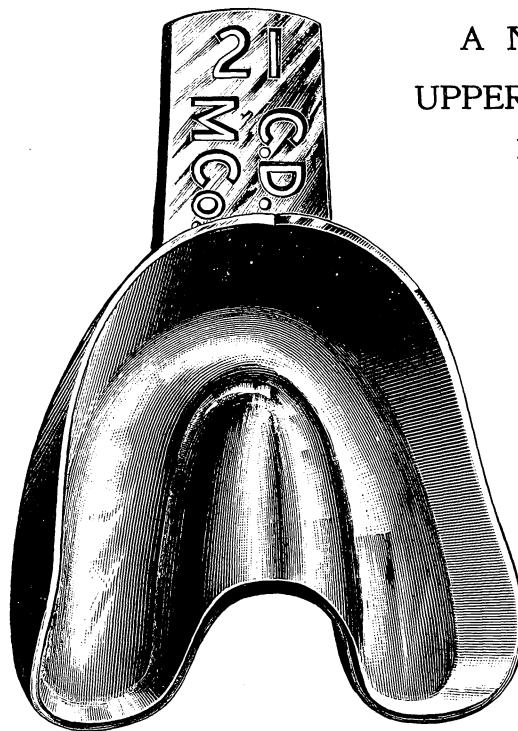
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The Horton Dental Bib

For more than twenty years this style of dental bib has been in use by the profession. With the exception of being especially well made, there is no change in the bib as we now offer it. It is made of good quality rubber, neatly covered with plaid cloth, as illustrated. The seams are both stitched and cemented.

Price, 75 cents.





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UPPER IMPRESSION TRAYS
FOR REGULATING.

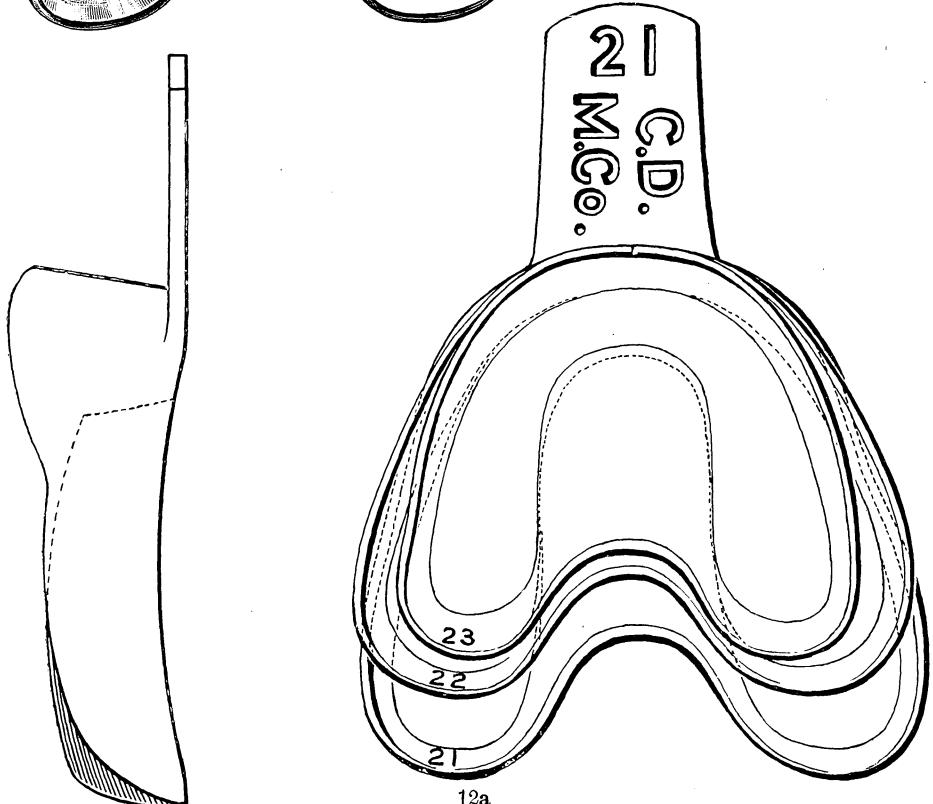


For obtaining impressions in cases of irregularities, these Trays are especially serviceable, and for this purpose principally they were designed. Their shape and depth is such that it is only necessary to fill them with plaster, leaving very little surplus material to cause annoyance.



PRICE:

Regulating Upper Impression Trays,
Nos. 21, 22 and 23,
each, 35 cents.



A NEW SET OF DEEP
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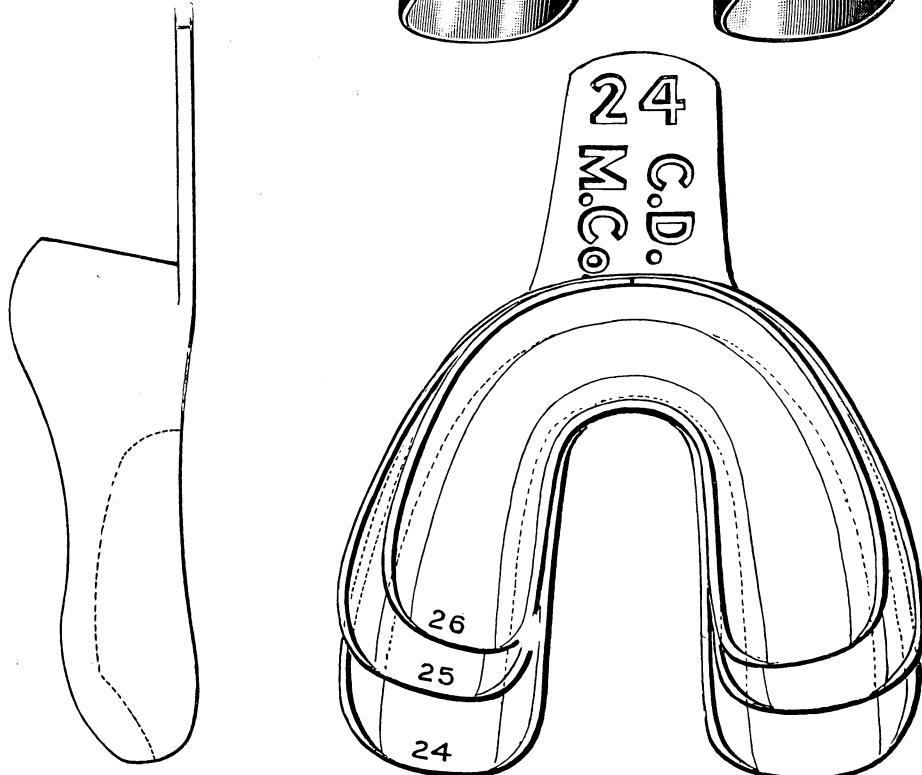
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These Trays correspond in form and usefulness to the new set of Deep Upper Impression Trays, Nos. 21, 22 and 23.

Both sets are well made, finely finished and correct in every detail.

*

PRICE:
Regulating Lower Impression Trays,
Nos. 24, 25 and 26,
each, 35 cents.



Have you tried Consolidated Temporary Stopping?

Dental
Mfg.
Company's

*For Filling Nerve Canals, Retaining Medicaments in the Treatment
of Teeth, and in all cases where a Temporary
Filling is desired.*



This stopping does not leak. It is rendered plastic at a very low degree of heat. It can be used with satisfactory results in operations quite close to the pulp. As a Trial Filling for Treated Teeth, it will be found superior to many others prepared for this purpose.



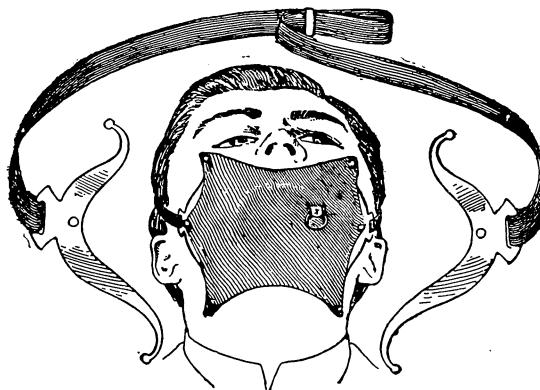
Directions for use with each package.

Put up in three styles: PINK, WHITE and ASSORTED.

Price per Package, 30 Cents.

DR. HINKLEY'S RUBBER DAM HOLDER. Catalogue No. 241.

Patented February 2, 1897.



Holds the Dam firmly independently of any change in the position of the head.
Extends the cheeks and admits the light to obscure cavities in posterior teeth.

Obviates the necessity of weights, and gives the operator free use of both hands at all times. Is more efficient than inferior makes and requires less dam in its use.

Dr. Hinkley designed this Rubber Dam Holder to assist the operator in exposing to light obscure and inaccessible cavities in posterior teeth. The illustration shows how efficient it is for this purpose.

In using the Holder, the upper ball of the face plate is first to be attached; then the lower; lastly, by attaching the center point, the surplus rubber will be taken up.

Avoid excess of pressure on the clamp by adjusting the head band loosely.

Price, postpaid, \$1.00.

DIAGRAM APPOINTMENT BOOK

AND

POCKET DIARY FOR DENTISTS.

TUESDAY.		Diagram of Teeth											
2	Mo. 10												
8	Miss Weston	1	G. H. Stone										
9		2	John Brown										
10	Carrie Thomas	3											
11	Mrs. Kenyon	4	Wm. Smith										
12		5											

The above is a fac-simile of one day's work in the "Diagram Appointment Book." The appointments are made as usual, and the fillings are accurately noted on the diagram. No ledger or other diagram is necessary for immediate use; at leisure the work may be copied into the larger ledger, if desired. After each person's name memoranda may be made of the amount charged or paid. It is easy to keep a record on this diagram of the work of this day, or of any day, by letting the hour of appointment stand for that person in the diagram, thus the figure "2" in the diagram stands for John Brown, the 2 o'clock appointment.

The Diagram Appointment Book and Pocket Diary

Contains the forms for making a brief but very clear record of work to be done, or memoranda of the work when finished.

There is a diagram of the teeth for each day. As appointments are made, the hour of the engagement is noted upon the diagram near the tooth or teeth to be treated. A glance at the diagram will then show the operator where the work is to begin.

The size of the book is $6\frac{3}{4} \times 4\frac{1}{4}$ inches. It has calendars for four years, and a table showing the number of days from any day in any one month to the same day in any other month; "The Appointment" pages follow this table. Following these are pages for memoranda and a monthly cash account and yearly summary.

Price, Leather Binding, 75 cents; Cloth, 50 cents.

No. 1 APPOINTMENT BOOK.

MONDAY.

8		1	
9		2	
10		3	
11		4	
12		5	

TUESDAY.

8		1	
9		2	
10		3	
11		4	
12		5	

WEDNESDAY.

8		1	
9		2	
10		3	
11		4	
12		5	

Can be used for any Year and commencing at any time.

Fine Leather Cover, Good Paper, Memorandum and Cash Account.

Calendar for Five Years.

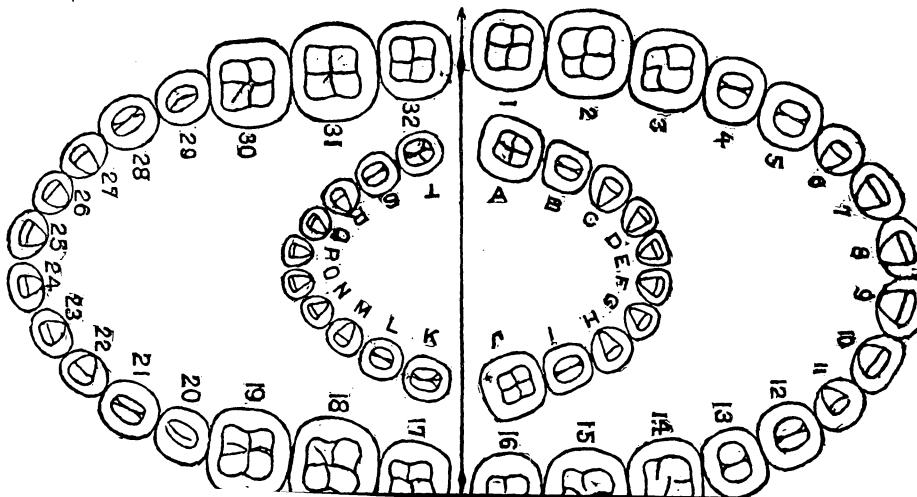
PRICE 50 CENTS.

ADVERTISEMENTS

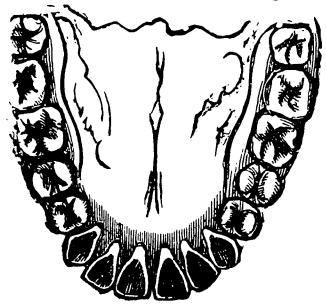
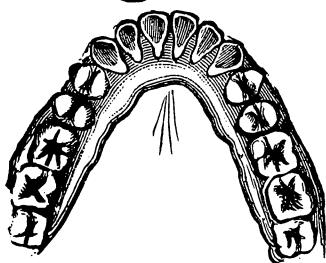
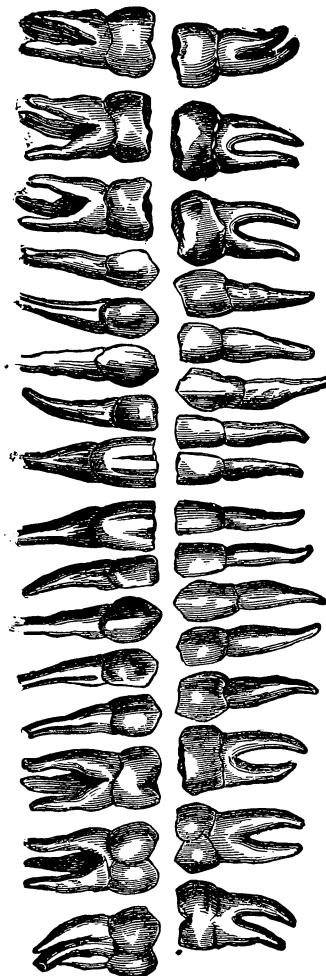
DARTT'S LEDGER, No. 1. 300 Pages, Single, \$2.00; Double, \$3.50.
 " " 600 " " 3.50; " 6.00; " 12.00.

Name _____ Residence _____

Name	FILLINGS	Copyright Secured, 1881	Artificial Teeth.	Hours		DR.	CR.
				Material	No. Teeth		
Cleaned							
Crowns							
Treated							
Anesthetic							
Extracted							
Tin							
G. Percha							
Os. Art.							
Amalgam							
Gold							
No.							
DATE							



Sent Free by Mail on Receipt of Price.



FILLINGS	Copyright Seounced, 1881	Artificial Teeth,	Dr.		Or.
			Hours	Dr.	
Material					
No. Teeth					
Cleaned					
Crowns					
Treated					
Anesthetic					
Extracted					
Tin					
G. Percha					
Os. Art.					
Amalgam					
Gold					
No.					
DATE					

Name

Residence

Remarks

DARTT'S LEDGER, No. 2.

300 Pages,	\$ 2.50
600 "	4.00
1200 "	7.00
300 Pages, Double, Two Accounts on Page, . . .	4.00
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1200 "	12.00

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Name and Address printed on without extra charge when 1000 are ordered.

FILLINGS.		Copyright Secured 1881.		Artificial Teeth	
No.		DATE		Hours.	
FILLINGS.		DATE		Dr.	Cr.
Cleaned					
Crowns.					
Treated.					
Anesthetic					
Extracted					
Tin.					
G. Perch.					
Os. Art.					
Amalgam					
Gold					

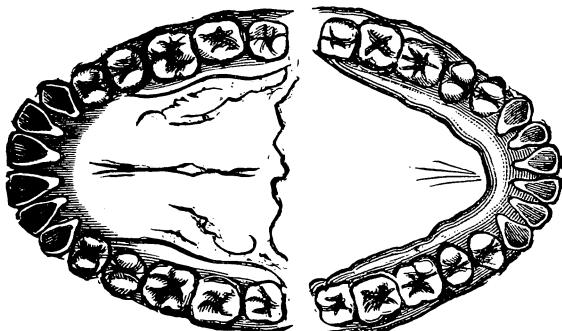
18

Name _____

Amount, \$ _____

FILLINGS.		Copyright Secured 1881.		Artificial Teeth	
No.		DATE		Hours.	
FILLINGS.		DATE		Dr.	Cr.
Cleaned					
Crowns					
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Anesthetic					
Extracted					
Tin					
G. Perch					
Os. Art.					
Amalgam					
Gold					

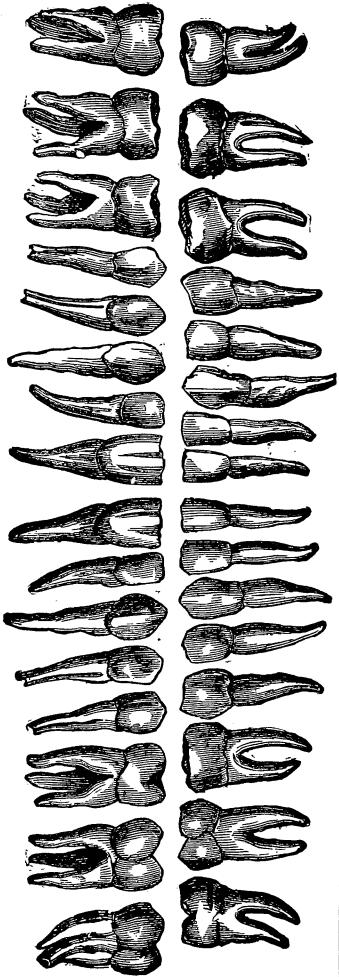
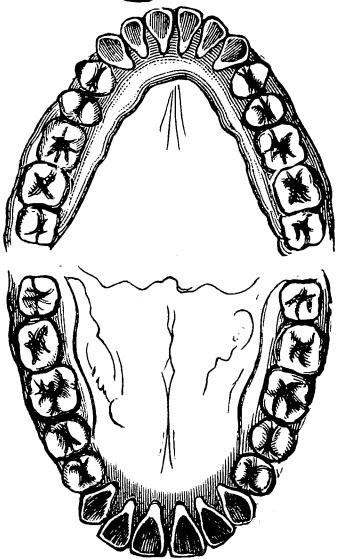
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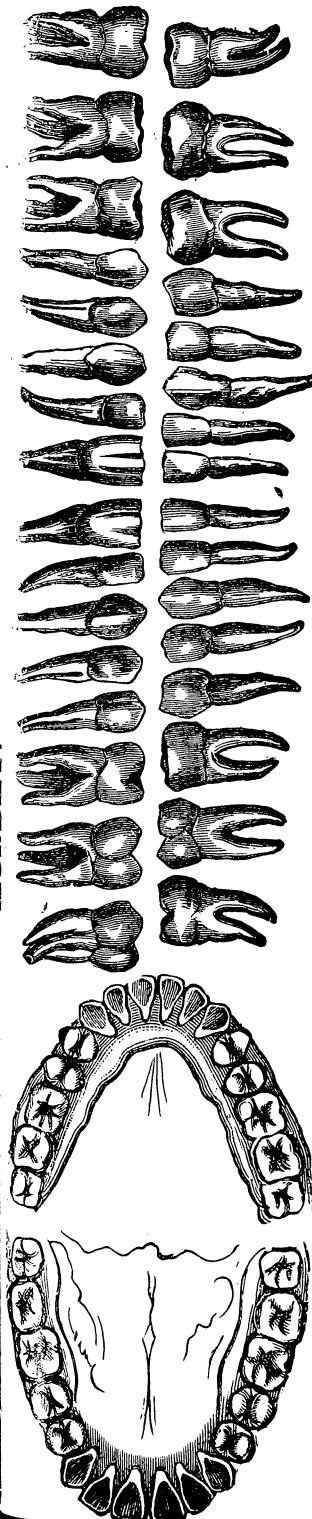
Sent Free by Mail on Receipt of Price.



DATE	FILLINGS	Copyright Secured 1881.	Artificial Teeth		
			Hours.	Dr.	Cr.
Material.			No. Toeth.		
Cleaned					
Crowns.					
Treated					
Anesthetic					
Extracted					
Tin.					
G. Percha					
Os. Art.					
Amalgam					
Gold					
No.					

Name _____	Residence _____	Remarks _____	_____	_____	_____
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DARTT'S DAY BOOK, No. 1.



APPOINTMENTS.	FILLINGS.	Copyright Secured 1881	C A S H.		EXPENSE ACCOUNT.
			Dr.	Cr.	
	Hours.				
	Material.				
	No. Teeth.				
	Cleaned.				
	Crowns.				
	Treated.				
	Anesthetic.				
	Extracted.				
	Tin.				
	G. Percha.				
	Os. Art.				
	Amalgam.				
	Gold.				
APPOINTMENTS.					
	NAME.	18			
			8		
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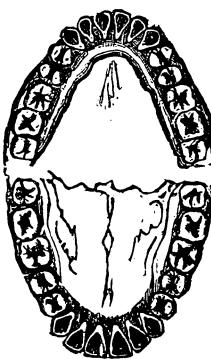
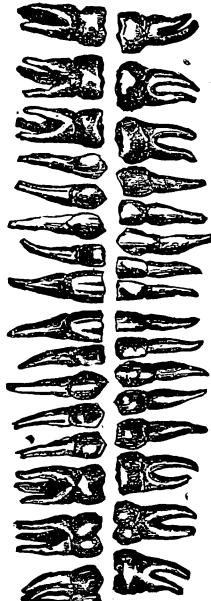
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\$2.50, Flexible Cover, 416
Pages, \$1.50. See next
Page.

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with 2 Diagrams on each
alternate page (26 Weeks),
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without Diagrams (52 Weeks),
\$1.50.

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Price.

SATURDAY



APPOINTMENTS.

NAME. 18

APPOINTMENTS.

DATE.

Copyright Secured 1881.

FILLINGS.

Artificial
Tooth.

Hours.

CASH.

Expense
Account.

No. Toeth.

Material.

Dr.

Cr.

Cleaneed.

Treated.

Anesthetic.

Extracted.

Crown.

Tin.

G. Perch.

Os. Art.

Amalgam.

Gold.

No.

Tin.

G. Perch.

Os. Art.

Amalgam.

Gold.

No.

Tin.

G. Perch.

Os. Art.

Amalgam.

Gold.

No.

Tin.

G. Perch.

Os. Art.

Amalgam.

Gold.

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G. Perch.

Os. Art.

Amalgam.

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Os. Art.

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Tin.

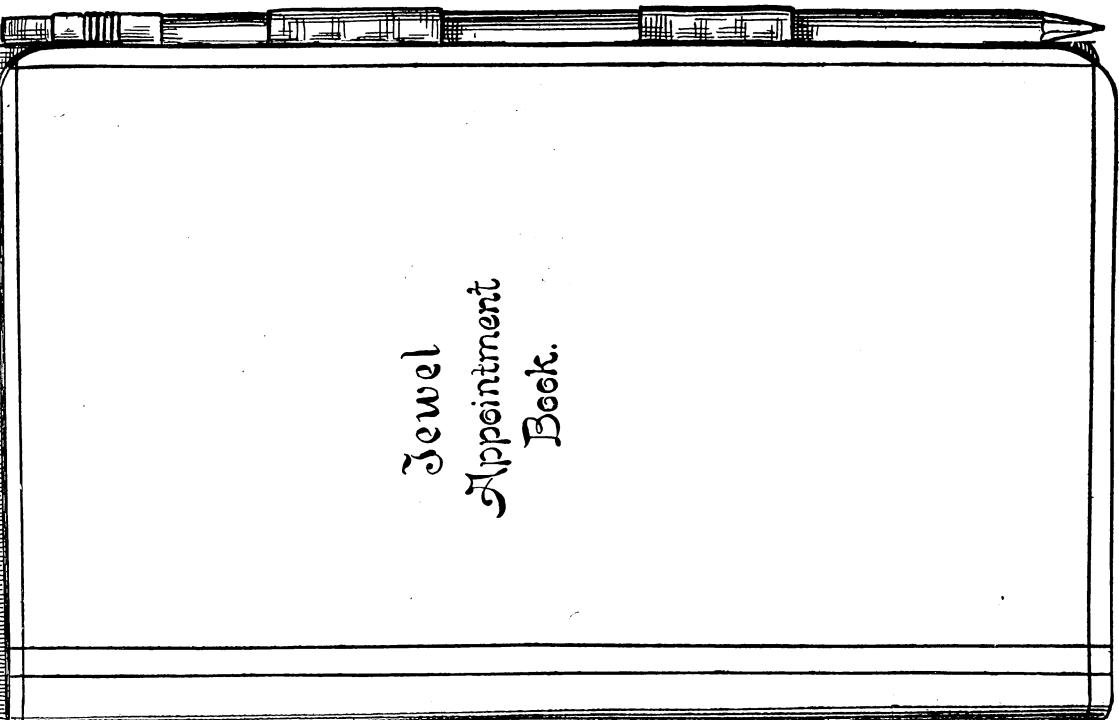
G. Perch.

Os. Art.

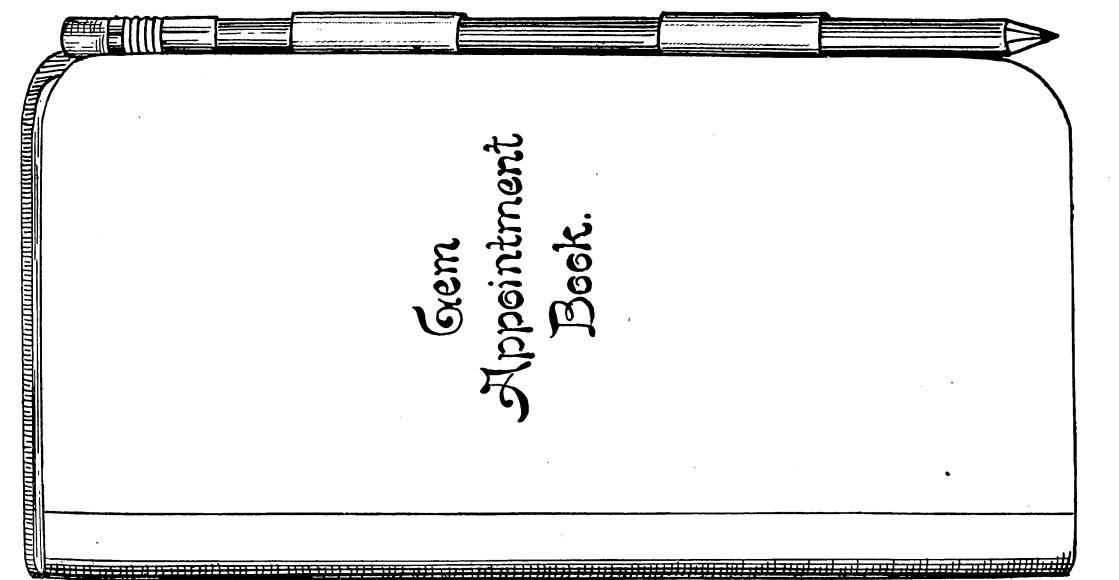
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Dartt's Jewel Office Appointment Book, (same as Gem, 4 $\frac{1}{2}$ x 6 inches), \$1.25.

Ruled in Colors, Full Leather Cover, Embossed Gilt Edges, Round Corners.



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Book.



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Appointment
Book.

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Name and Address printed on without extra charge when 1000 are ordered.

Copyright Secured 1881.	FILLINGS	Artificial Teeth	Dr.	Cr.	Hours.	Material.	No. Teeth.	Cleaned	Crowns.	Treated	Anesthetic	Extracted	Tin.	G Perch.	Os. Art.	Amalgam	Gold	No.	DATE

18

D.

J.

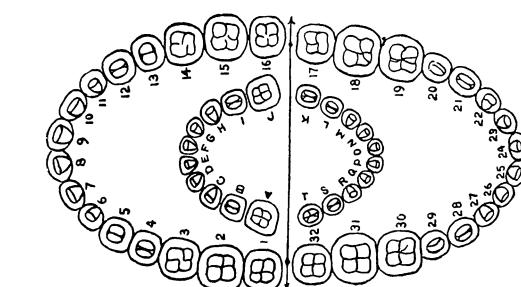
M.

189

Name

Amount, \$

Copyright Secured 1881.	FILLINGS	Artificial Teeth	Dr.	Cr.	Hours.	Material.	No. Teeth.	Cleaned	Crowns.	Treated	Anesthetic	Extracted	Tin.	G Perch.	Os. Art.	Amalgam	Gold	No.	DATE



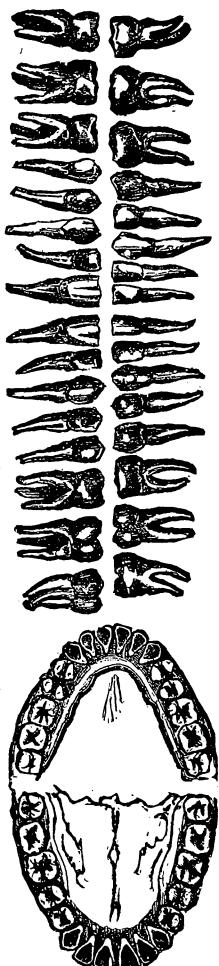
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Name and Address printed on without charge when 1000 are ordered.

Name	DATE	FILLINGS	Copyright Secured 1881.	Artificial Teeth	Dr.		Cr.	M.
					Hours.			
Material.								
No. Teeth.								
Cleaned								
Crowns.								
Treated								
Anesthetic								
Extracted								
Tin.								
G Perch.								
Os. Art.								
Amalgam								
Gold								
No.								



DATE	FILLINGS	Copyright Secured 1881.	Artificial Teeth	Dr.		Cr.	M.	
				Hours.				
Material.								
No. Teeth.								
Cleaned								
Crowns.								
Treated								
Anesthetic								
Extracted								
Tin.								
G Perch.								
Os. Art.								
Amalgam								
Gold								
No.								

189

18

To Dr.

Received Payment,

Name _____
 Amount, \$ _____

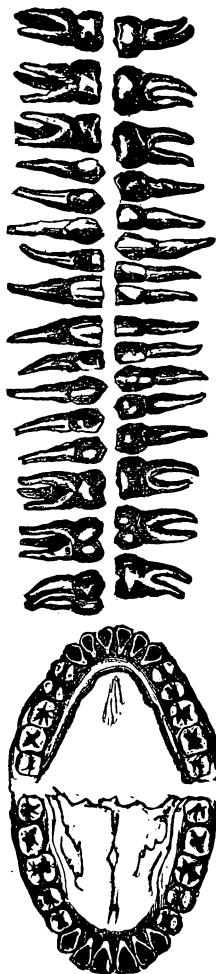
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Name and Address are printed on without charge when 1000 are ordered.

FILLINGS	Copyright Secured 1881. Artificial Tooth	Hours.		C.R.	
		Material.			
		No. Teeth.			
		Cleaned			
		Crowns.			
		Treated.			
		Anesthetic			
		Extracted.			
		Tin.			
		G Percha.			
		Os. Art.			
		Amalgam			
		Gold			
		No.			
		DATE.			



Name _____

Ammonit, §--

188

DENTIST, 6

For Professional Services.

A vertical grid of 12 horizontal lines and 11 vertical lines, creating 11 columns and 12 rows. The grid is oriented vertically on the page.

Received Payment, -

DARTT'S BILL HEADS, No. 4.

Bound 100 in a Book, with Stub and Blotter Cover, 50 cents.

Sent Free by Mail on Receipt of Price.

Name and Address printed on without charge when 1000 are ordered.

18

Mr.

1

For Professional Services.

‘DENTIST’

689

Name: _____

Amount, \$ -

1

189

DARTT'S BILL HEADS, No. 5.

Bound 100 in a Book, with Stub and Blotter Cover, 50 cents.

Sent Free by Mail on Receipt of Price.

Name and Address printed on without charge when 1000 Bills are ordered.

FILLINGS	DATE	No.	Copyright Secured 1881.	Artificial Teeth	Hours.	Cr.
			Material.		DR.	
			No. Teeth.			
			Cleaned			
			Crowns.			
			Treated			
			Aneesthetic			
			Extracted			
			Tin.			
			G Perch.			

18

Name _____

Amount, \$-----

18

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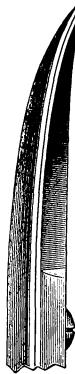
DENTIST.

For Professional Services.

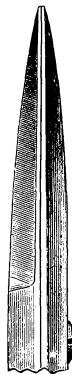
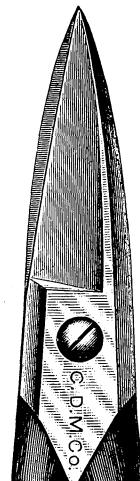
Received Payment

No. 642

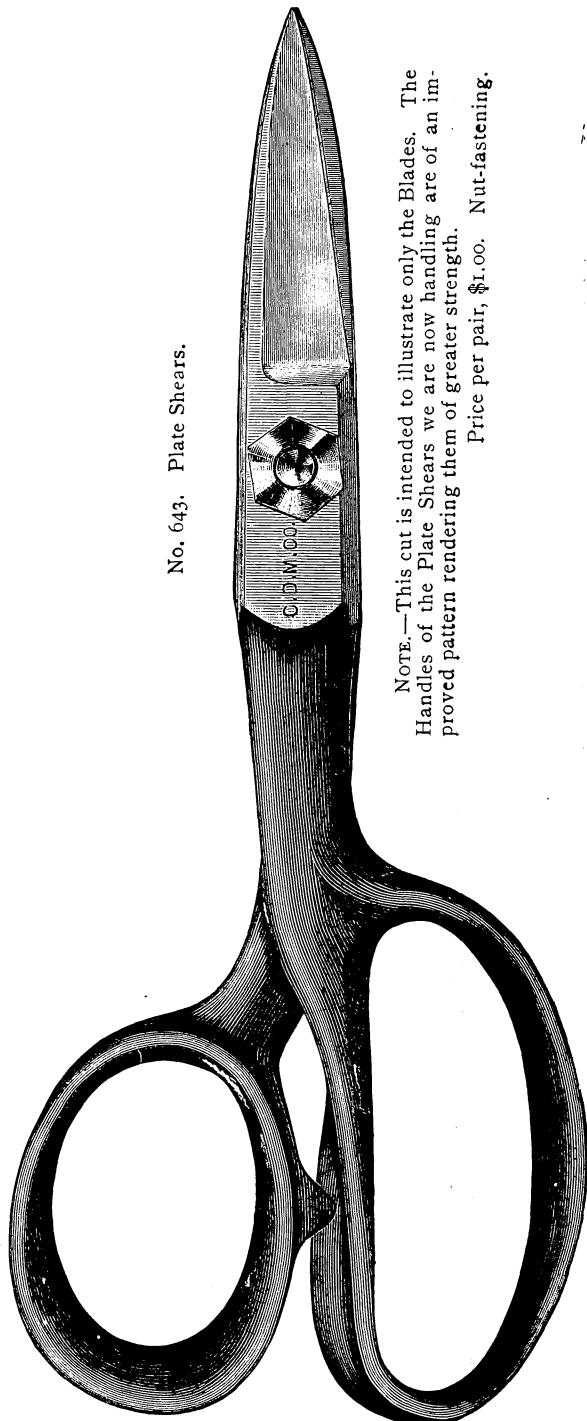
CROWN SHEARS.



No. 642 B
Curved
Price
85c.



No. 642 A
Straight
Price
60c.



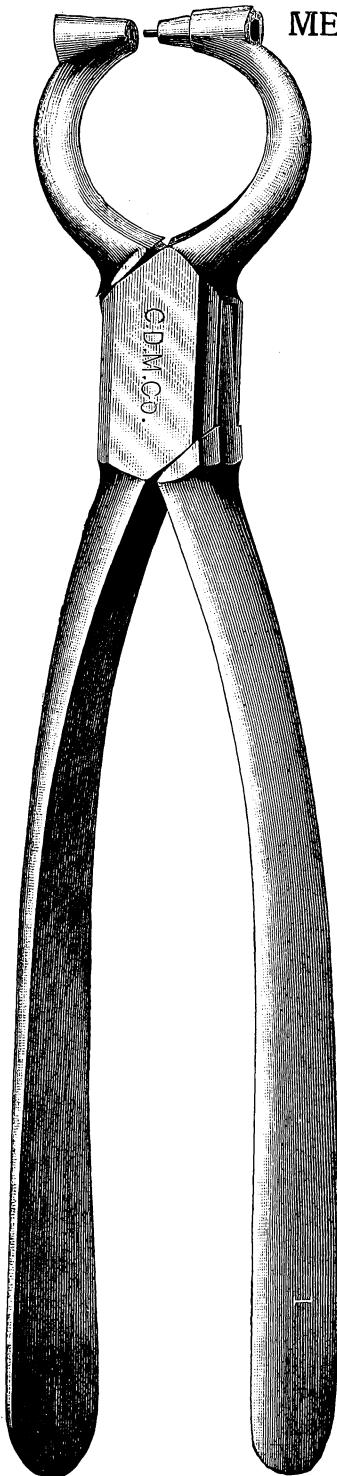
No. 643. Plate Shears.

NOTE.—This cut is intended to illustrate only the Blades. The Handles of the Plate Shears we are now handling are of an improved pattern rendering them of greater strength.
Price per pair, \$1.00. Nut-fastening.

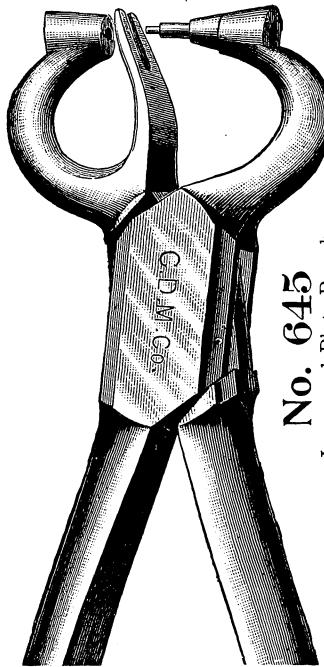
15

With Straight or Curved Blades.

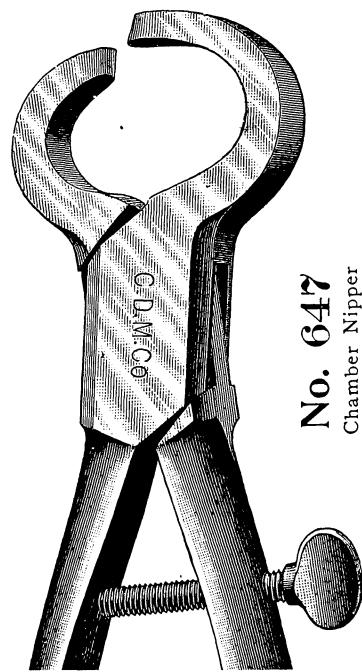
MECHANICAL FORCEPS.



No. 644 Plate Punch. Price \$2.00

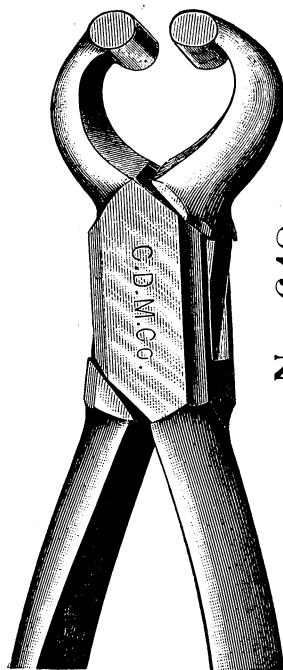


No. 645
Improved Plate Punch
Price, \$3.00



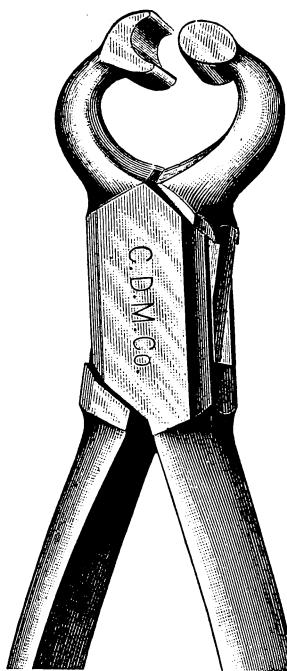
No. 647
Chamber Nipper
Price, \$2.00

MECHANICAL FORCEPS



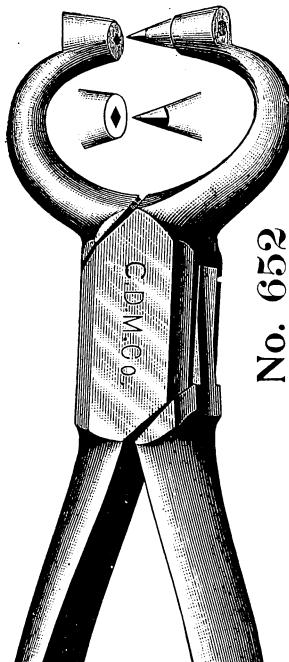
No. 648

Upper Plate Bender. Price, \$2.00



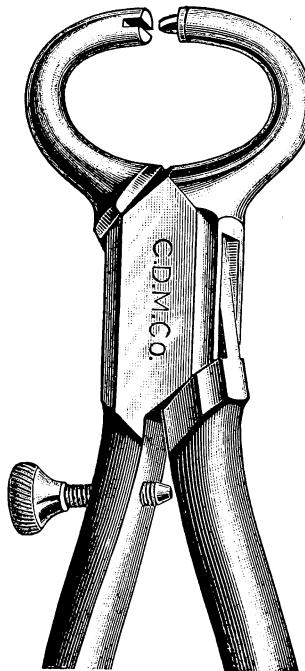
No. 649

Lower Plate Bender. Price, \$2.00



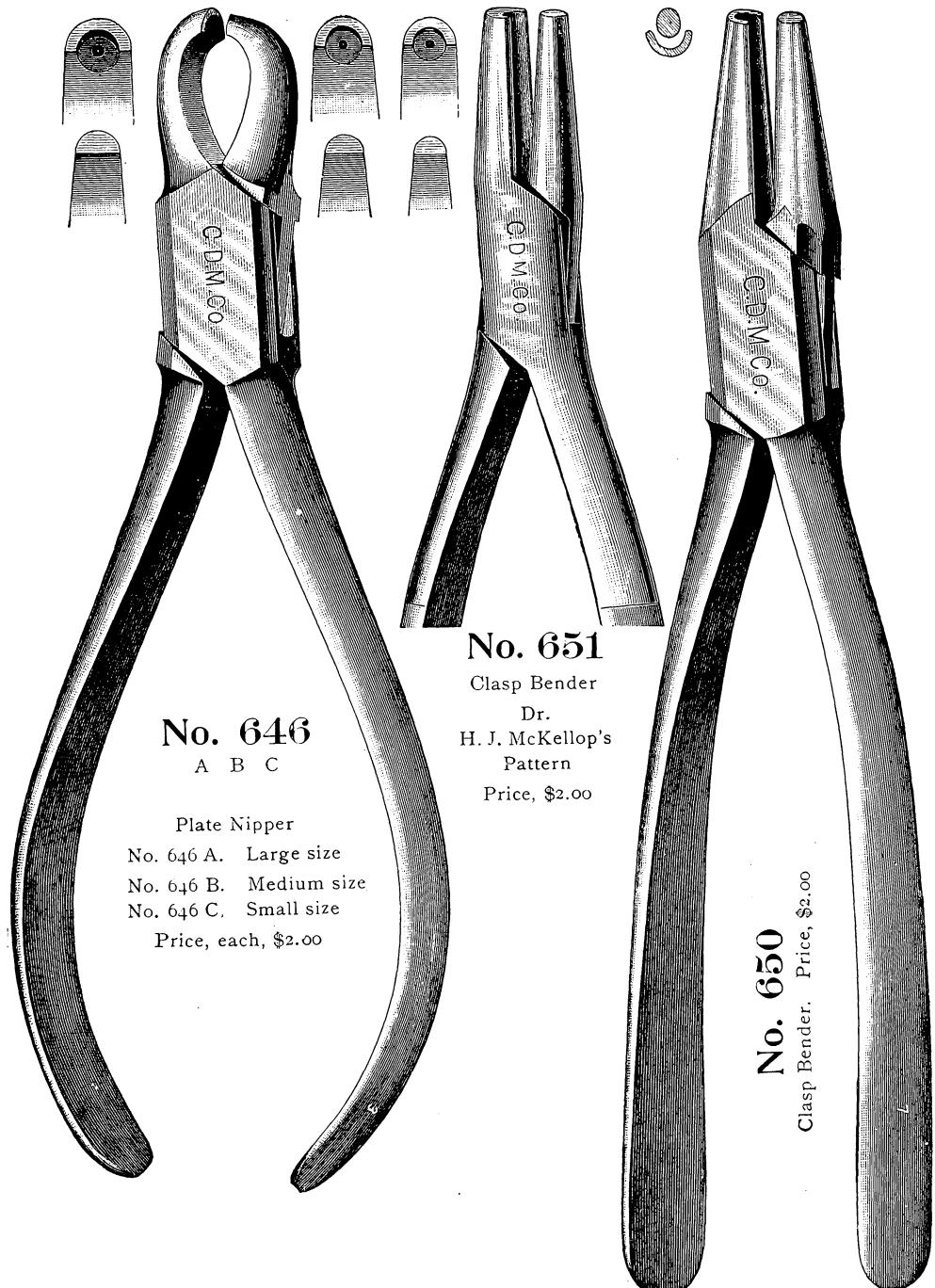
No. 652

Dr. A. S. Richmond's Perforating Forceps. Price, \$2.50

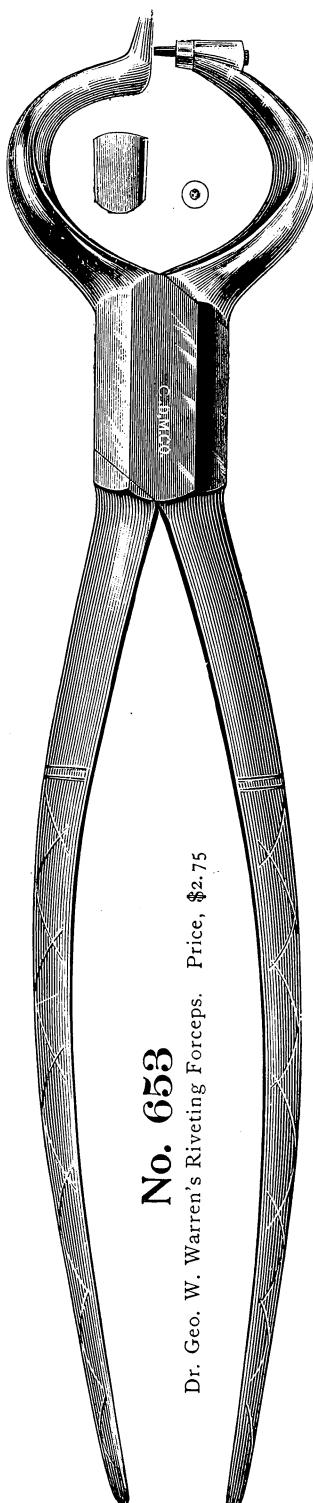


Loop Punch. Price, \$2.00

MECHANICAL FORCEPS

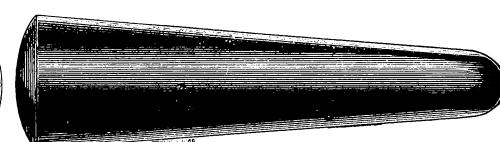


MECHANICAL FORCEPS



No. 653

Dr. Geo. W. Warren's Riveting Forceps. Price, \$2.75

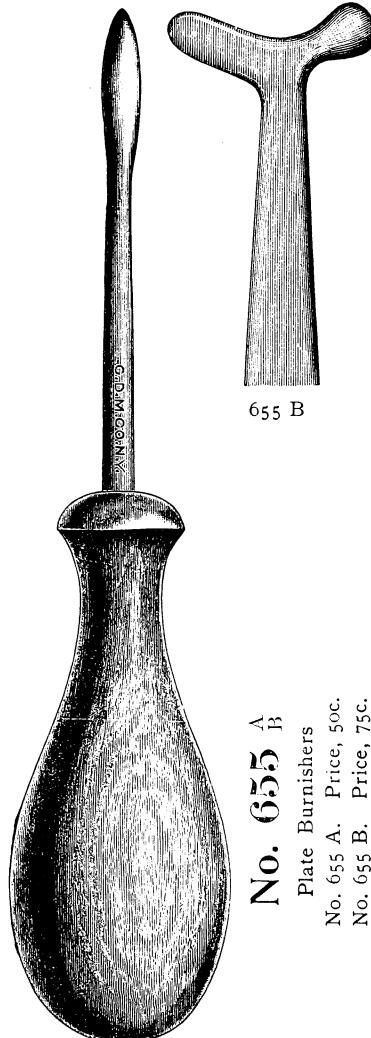


No. 654

Horn Mallet. Price, 30c.



655 B



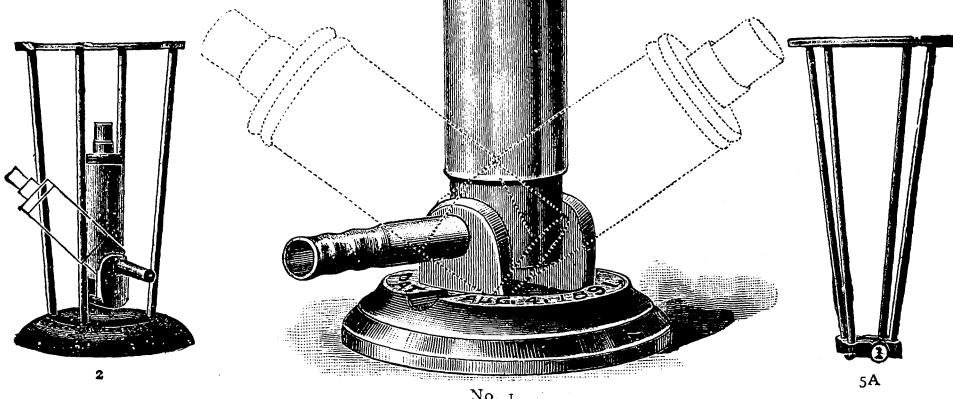
No. 655 A

Plate Burnishers
No. 655 A. Price, 50c.
No. 655 B. Price, 75c.

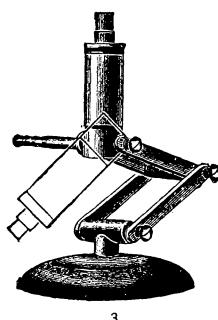
THE DR. FRIEDBURG PATENTED SAFETY BURNER.

CHAS. E. DRESSLER & BRO.
Patentees and Manufacturers.

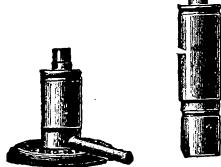
Catalogue
677
Number



No. 1.

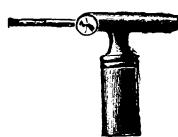


3



4

5



6

Burner.	Plain Brass.	Nickel Plated.
No. 1.....	\$0 75	\$1 15
" 2.....	1 20	1 60
" 3.....	1 30	1 70
" 4.....	0 75	1 00

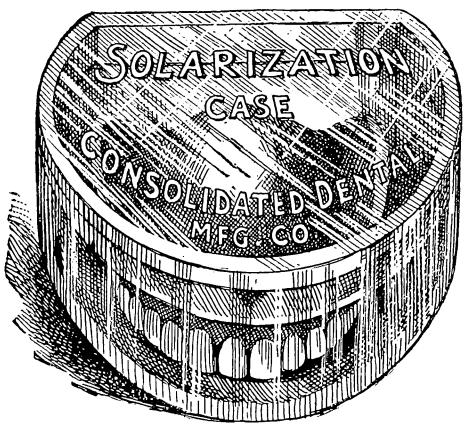
Burner.	Plain Brass.	Nickel Plated.
No. 5.....	\$0 70	\$1 00
" 5A.....	0 35	0 50
" 6.....	0 65	0 80

PRICES.

CONSOLIDATED DENTAL MFG. CO.

Sole Agent to the Dental Trade and Profession.

Solarization Cases



Inside Dimensions.

Price.

No. 582 A— $3\frac{1}{8}$ x $2\frac{1}{4}$ x 1 in. 25c.
No. 582 B— $3\frac{1}{8}$ x $2\frac{3}{8}$ $2\frac{9}{16}$ in. 35c.

By Mail, 5c. Additional.

FOR the proper development of that desirable bright, rich color of dental rubber (particularly pink rubber), a

SOLARIZATION CASE

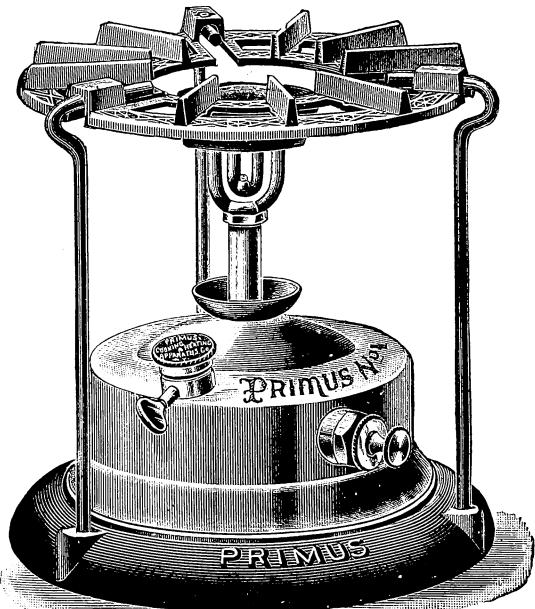
is a necessity. These Solarization Cases are designed to fill the demand for a

SPECIAL RECEPTACLE

for the solarizing process. A denture submerged in alcohol placed in one of these Solarization Cases and exposed for a short time to the light of the sun will have a beautiful pink shade closely resembling the natural color of the gums.

Solarization cases are made of heavy flint glass with neatly fitting lid and of proper shape to produce the best results, and the rapid evaporation of the alcohol is avoided.

THE PRIMUS STOVE



The illustration represents the most popular form of the Primus Heating Apparatus. It is without doubt the best kerosene burning apparatus made. Has no wick. By operating the air pump shown in cut near the centre front of the reservoir, the oil is forced upward through the burner, the heat of which converts the oil into a vapor, that when ignited produces a clear blue flame without any smoke or odor. The tank cannot be filled while burning, because the removal of filler cap instantly extinguishes the flame. A quart of oil will last five hours with stove burning at full capacity. The flame can be regulated to a minimum. Perfect combustion is always maintained. For dental laboratory purposes, this stove is exceedingly useful. It serves all the purposes of the Bunsen gas heater, and its uses are universal. It produces a heat sufficient to boil a quart of water in less than four minutes. Its efficiency, cleanliness, freedom from smoke, soot, odor and danger; its attractive appearance and other exclusive features combine to make it the most satisfactory oil-burning apparatus made.

Height, $9\frac{1}{4}$ inches; Diam. $9\frac{1}{4}$ inches; Capacity of Reservoir, one quart; Shipping Weight, 11 lbs.

PRICE, - - - \$4.00.



THE PRIMUS CO., Makers,
New York

Consolidated Dental Mfg. Co. *Selling Agents to the Dental Trade and Profession. . . .*

PRESCRIBE **LISTERINE**

FOR PATIENTS WEARING
BRIDGE WORK OR DENTURES

AND AS A GENERAL

Antiseptic and Prophylactic Wash
For the Mouth and Teeth



LISTERINE

Is kept in stock by leading dealers in drugs everywhere, but in consequence of the prevalence of the **SUBSTITUTION EVIL** we earnestly request **DENTAL PRACTITIONERS** to PRESCRIBE **LISTERINE** IN THE ORIGINAL PACKAGE.



LISTERINE is invaluable for the care and preservation of the teeth. It promptly destroys all odors emanating from diseased gums and teeth, and imparts to the mucous surfaces a sense of cleanliness and purification ; used after eating acid fruit, etc., it restores the alkaline condition of the mouth necessary for the welfare of the teeth, and employed systematically it will retard decay and tend to keep the teeth and gums in a healthy state. **LISTERINE** is valuable for the purification of artificial dentures and for the treatment of all soreness of the oral cavity resulting from their use. Patients wearing bridge work should constantly employ a **LISTERINE** wash of agreeable strength.

LISTERINE is used in various degrees of dilution ; one to two ounces of **LISTERINE** to a pint of water will be found sufficiently powerful for the general care of the deciduous teeth of children, whilst a solution composed of one part **LISTERINE** and three parts water will be found of agreeable and thoroughly efficient strength for employment upon the brush and as a daily wash for free use in the oral cavity, in the care and preservation of the permanent teeth.

LITERATURE DESCRIPTIVE OF **LISTERINE** MAY BE
HAD UPON APPLICATION TO THE MANUFACTURERS

LAMBERT PHARMACAL COMPANY,
.... ST. LOUIS, MO.



NOTE.—Terms for advertising in this department of future issues of "ITEMS OF INTEREST" are ten cents per word, including captions, "Wanted," "For Sale," etc., and address. Initials charged as words. Advertisements should reach us by the 20th of each month to insure insertion in following month's issue. Advertisements payable in advance.

CONSOLIDATED DENTAL M'FG Co., Publishers, 115 W. 42d St., New York, N. Y.

793—WANTED.—Position by graduate. Address "M.," No. 380 King St., Kingston, Canada.

794—FOR SALE.—Dental practice, Toledo, Ohio. Location first-class; retiring from business; established twenty-five years; beautiful suite of offices, recently furnished elegantly and complete throughout. New Columbia operating chair and every modern equipment. Water motor, etc., etc. For particulars, address RANSOM & RANDOLPH Dental Depot, Toledo, Ohio.

795—FOR SALE.—Dental outfit, \$50. Dentist deceased. MRS. WOODBRIDGE, Mendota, Ill.

796—WANTED.—Partner for operating; doing \$4,000 cash. Address DR. W. SCHLAGER, No. 95 Wisconsin St., Milwaukee, Wis.

797—FOR SALE.—An advertising practice in Eastern Pennsylvania; furnished complete and up to date. Address PHILADELPHIA DENTISTS, Shamokin, Pa.

798—WANTED.—A first-class experienced salesman for the road. Must be familiar with dentistry and the dental trade. Address (giving full particulars), "BUSINESS," care of "Items of Interest," No. 115 West 42d St., New York.

799—FOR SALE.—Practice in growing Missouri town. Address Box 258, Sarcoxie, Mo.

800—WANTED.—To buy New York country practice. Address "800," care of "Items of Interest," No. 115 West 42d St., New York.

801—FOR SALE.—Office and practice in one of the best towns in Western Pennsylvania. Address "GOOD CHANCE," care of "Items of Interest," No. 115 West 42d St., New York.

802—ASSISTANTSHIP OR PARTNERSHIP wanted by a first-class all-around dentist of ten years experience. Address "802," care of "Items of Interest," No. 115 West 42d St., New York.

803—FOR SALE.—Established practice, and outfit complete. Healthful section, growing Virginia town, 3,500. Good reasons for selling. Address "BARGAIN," care of Mr. H. W. Cassell, No. 212 N. Charles St., Baltimore, Md.

804—WANTED.—Position by experienced graduate; state salary. Address "804," care of "Items of Interest," No. 115 West 42d St., New York.

805—WANTED.—Position; registered in New Jersey; experienced; graduate; unmarried; age, 25. Address "805," care of "Items of Interest," No. 115 West 42d St., New York.

806—WANTED.—Situation; assistant or manager. Proficient, experienced, reliable. Address "EXPERT," care of "Items of Interest," No. 115 West 42d St., New York.

807—WANTED.—Practice or partnership. Address "HURRY," care of "Items of Interest," No. 115 West 42d St., New York.

808—WANTED.—Position by competent graduate; three years' experience. Address "808," care of "Items of Interest," No. 115 West 42d St., New York.

809—WANTED.—Position by an undergraduate, several years' experience; bridge worker, and good all-around workman. Address "809," care of H. W. Cassell, No. 212 N. Charles St., Baltimore, Md.

810—TO LET.—Dental rooms; finest, best location; old-established. Address W. H. FOWLER, No. 93 Water St., Newburgh, N. Y.

811—FOR SALE.—An exceptional proposition in Colorado. For particulars, apply or write to "811," care of "Items of Interest," No. 115 West 42d St., New York.

812—FOR SALE.—Dental practice and outfit New York City; less than cost of outfit. Address "812," care of "Items of Interest," No. 115 West 42d St., New York.

813—FOR SALE.—Snap! Advertising office below inventory. Address "MIDDLE WEST," care of "Items of Interest," No. 115 West 42d St., New York.

814—WANTED.—Experienced operator and bridge worker; temperate; send photo; references; state salary. Address DR. SMITH, No. 2805 St. Charles Ave., New Orleans, La.

☞ See following page.

Wants, For Sale, Etc.—Continued.

815—WANTED.—Position with private dentist; graduate; four years experience. Address “815,” care of “Items of Interest,” No. 115 West 42d St., New York.

816—WANTED.—Position by graduate; good all-around dentist. Address “EXPERIENCED,” care of Consolidated Dental Mfg. Co., No. 1413 Filbert St., Philadelphia.

817—Graduate N. U. D. S., 1897, will buy active partnership in well-established paying business; references exchanged. Address “817,” care of Consolidated Dental Mfg. Co., No. 78 State St., Chicago, Ill.

818—FOR SALE.—Practice over \$250 month; Southern seaport, 60,000; always summer; stand closest investigation. Address “MAC,” care of James Downie, Austin, Texas.

819—WANTED.—Good, all-around man. Address B. F. WENDELL, Johnstown, Pa.

820—WANTED.—Position by registered, experienced graduate. Good crown and bridge worker. Address “820,” care of “Items of Interest,” No. 115 West 42d St., New York.

821—FOR SALE.—Wilkerson chair, maroon plush, upholstered. All OK. S.

S. W. engine. Universal H. P. Cash bargains. Address Room 12, Swift Block, Pueblo, Colo.

822—WANTED.—All-around dentist; state salary expected. Address Box 63, Broken Bow, Nebraska.

823—WANTED.—Position, with view of partnership or purchase. Can do work, and handle people. Address “823,” care of “Items of Interest,” No. 115 West 42d St., New York.

824—FOR SALE.—Advertising practice in New York City; \$7,000 per year guaranteed. Owner in ill-health. Will accept suitable cash offer. Address “PROSPEROUS,” care of “Items of Interest,” No. 115 West 42d St., New York.

825—FOR SALE.—Practice averaging \$500 per month, in Massachusetts city. Reason, ill-health. Modern office outfit; good fees. Capable man could hold all the business. Some capital. Address “WORCESTER,” care of “Items of Interest,” No. 115 West 42d St., New York.

826—WANTED.—First-class man, or one willing to learn to do first-class work. State salary wanted. Address “826,” care of “Items of Interest,” No. 115 West 42d St., New York.



No Smoke
No Odor

Comfort for Cold Days

Banner Oil Heater

Will Heat a Large Room in Cold Weather

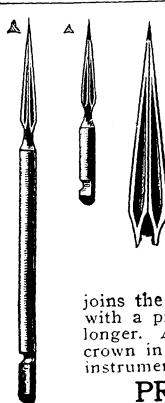
Indispensable after its merits are tested. Handsomely made. Satisfaction guaranteed or money refunded. Will send, freight paid, on receipt of **\$5.00**, to any point east of the Rocky Mountains, in the U. S.

FREE! Our book of points on stoves and lamps

The Plume & Atwood Mfg. Co.,
FACTORIES: Waterbury and Thomaston, Conn.

NEW YORK
BOSTON
CHICAGO

\$5.00
Freight
Paid



PULP-CANAL REAMER

Devised by Dr. J. Leon Williams

In describing this instrument Dr. Williams says: “It is a modification of the three-sided reamer, but the modification is much the most important feature of the tool. Each of the three sides is deeply grooved. The result of this grooving is two-fold. It makes an instrument which is as easily sharpened as an excavator, and which can, therefore, be kept in the finest cutting condition until worn out. The grooves also render the tool self-clearing. It never clogs, it cuts very rapidly, and there is not the slightest danger of forcing it through the side or end of the root. It leaves roots which have a curvature at the end in the best possible condition for treatment with sulphuric acid or by any other method, i. e., with a large cone-shaped opening giving an abundance of room for working and seeing. It cuts away more of the infected dentine with less destruction of the root than can be accomplished by the use of any other instrument. And, finally, it leaves the root canal exactly the shape required for the strongest and best form of pin for crown work—a pin which is largest and strongest where it

joins the crown and which gradually tapers to a fine point in the end of the root. Crowns with a pin of this shape are much less liable to get loose because the pin can be made much longer. Also, one never finds an air cushion beneath a pin of this shape when cementing a crown in place. From every point of view, therefore, I regard this as much the most valuable instrument for opening pulp canals that I have ever used.”

PRICE, EACH

60 CENTS

“It Is More.”

A prominent dentist of Chicago said this fall to the writer:

“Your Sozodont surprises me. It is more than a mouth-wash—it is a dentifrice; and furthermore, in certain cases a remedial agent also.”

Have you thought of Sozodont as a mere dentifrice, possessing no antiseptic and healing properties? If so, permit us to offer proof to the contrary. At the same time, we will, at your command, send you samples of both the liquid Sozodont and Sozodont Powder. Address (Mentioning December ITEMS),

Hall & Ruckel,

New York,
215 Washington St.,
Dec. 1, 1898.

Sole Proprietors of Sozodont,

New York and London.

Established 1848.

UNIMPEACHABLE TESTIMONY
OF
'EMINENT'

DENTISTS
PHYSICIANS
PATHOLOGISTS
AND
BACTERIOLOGISTS

IN RE

Dentacura
TRADE MARK

From
Dr. J. FOSTER FLAGG,
Swarthmore, Pa.

"Regarding your 'Tooth Paste,' I would say that for many years I have noted the decidedly beneficial results from detergent and antiseptic remedies as applied in the mouth, and the more so in proportion as the need existed.

YOUR PREPARATION IS VERY GRATIFYING TO PATIENTS, AND THE RESULTS FROM ITS USE ARE EMINENTLY SATISFACTORY."

A REVELATION
IN DENTAL
THERAPEUTICS

From
Dr. ARTHUR L. SWIFT,
Dentist,

161 W. 71st St. New York.

"After thoroughly testing 'DENTACURA,' personally and in my practice, I HONESTLY CONSIDER IT A REVELATION IN DENTAL THERAPEUTICS.

I have found it especially valuable in the treatment of STOMATITIS and PYORRHŒA ALVEOLARIS, while for sore, bleeding and spongy gums it seems to be a panacea.

It combines at once the cleansing, healing and prophylactic properties of an ideal dentifrice."

From
R. C. SARGENT, D. D. S.,
120 Tremont St., and
3 Hamilton Place,
Boston, Mass.

POWERFULLY
ANTISEPTIC
AND
PROPHYLACTIC

"After a careful observation of the results following the use of 'DENTACURA,' I am pleased to say I consider it an ideal preparation.

While powerfully antiseptic, I find its influence upon the most delicate and sensitive tissues to be decidedly beneficial.

It combines with a delightful tooth paste, prophylactic properties of the highest order."

THE
DENTAL
PROFESSION

as a profession, is more
vitally interested in
knowing if

Dentacura
TRADE MARK

is the ideal
PROPHYLACTIC

and

THERAPEUTIC
claimed for it than they
are in knowing if the
DENTACURA CO. were
justified in advertising the
results of a society's
investigations, as they did.

IF...

Dentacura
TRADE MARK

does ONE-HALF what the
Investigating Committee
states it will do,

THEN...

our advertisement of
the results of their
investigation becomes
insignificant and
inconsequential.

That DENTACURA will do
ALL that is claimed for it
is proven by the
testimony of hundreds of
eminent practitioners,
who, after long and
continued use of

Dentacura
TRADE MARK

testify to its wonderful
CLEANSING,
HEALING and
PRESERVING
PROPERTIES.

(over)

TESTIMONIALS IN RE

Dentacura
TRADE MARK

From DAVID H. BALDWIN,
Chemist and Bacteriologist,
Board of Health,
Montclair, N. J.

KILLS ALL
GERMS

"I am pleased to report that I have found DENTACURA TOOTH PASTE to possess the power of annihilating the bacilli of TYPHOID FEVER and of DIPHTHERIA, and of thoroughly destroying the activity, growth and multiplication of the lower forms of vegetable life. I find it a perfectly harmless ANTISEPTIC DISINFECTANT and DEODORANT, and a dentifrice eminently suitable for cleaning and preserving the teeth."

NOTHING
LIKE IT

HENRY TURNER BROOKS,
M. D.,
Bacteriologist, N. Y.
Pathologist to Beth-Israel Hos-
pital; Consulting Pathologist
to the Hebrew Guardian Sheltering Asylum, etc.,
etc.

"From personal experience with 'DENTACURA,' I am convinced it is a most effective dentifrice, combining marked cleansing, antiseptic, disinfectant and deodorant properties. As far as I am able to judge, it appears to possess qualities manifested by no other similar preparation."

The acknowledged merits of the ingredients, of which the product is composed, ARE OF THEM-SELVES A SUFFICIENT GUARANTEE as to effectiveness."

From
H. C. SCOBY, D. D. S.,
Long Branch, N. J.

IT STANDS
PRE-EMINENTLY
ALONE

"DENTACURA" seems to me to be an ideal preparation; it not only has great cleansing action on the teeth and gums, but also exerts distinct and decided antiseptic influence on the entire mucous membrane of the oral cavity.

IT STANDS PRE-EMINENTLY ALONE, and should command the attention and endorsement of every conscientious dental surgeon. I believe it will be eventually recognized by the profession, as a most powerful adjunct to the dental armamentarium."

From W. T. McLEAN, M. D.,
D. D. S.,
Secretary Cincinnati College of
Dental Surgeons and Oral
Hospital;
Treas. Cincinnati Academy of
Dentistry.

"From the results noticeably following the use of 'DENTACURA,' I can heartily recommend it. There is no question about its antiseptic properties, and I feel sure ITS USE WILL BECOME UNIVERSAL. I shall prescribe it."

From
W. J. LEEDS, D. D. S.,
721 Lexington Ave.,
New York.

IT IS ALL THAT
IS CLAIMED
FOR IT

"I have given DENTACURA TOOTH PASTE a thorough trial in my office, and find it to be all that is claimed for it. I therefore cheerfully recommend it."

TESTIMONIALS IN RE

Dentacura
TRADE MARK

CONTINUED

THE
DENTRIFICE
PAR
EXCELLENCEFrom
Drs. PINKHAM & MORGAN,
Dentists,
Cor. Main & Grove Sts.,
E. Orange, N. J.

"'DENTACURA' has proven to be the best all around dentifrice ever brought to our notice. It not only cleanses the teeth, but its powerful antiseptic properties ARE A PREVENTATIVE TO ALL DISEASED CONDITIONS of the gums and the mucous membrane of the oral cavity. IT TIGHTENS LOOSENERED TEETH, eradicates pus and maintains a perfect hygiene of the mouth. We most heartily endorse it."

From Dr. Z. S. TAYLOR,
Dentist,
14 W. 126th St., New York.

PREVENTS
CONTAGION

"I have personally used 'DENTACURA,' and have given also, in addition thereto, careful consideration of the various ingredients it contains. In my opinion it is a most valuable dentifrice, and I do not hesitate to recommend it. It prevents the ingestion of organisms which gain entrance to the system through the mouth and are the CAUSE OF infectious diseases. It is a remedy and a principle which most dentrifrices do not possess."

A PERFECT
PREPARATIONFrom
WM. GIRD BEECROFT,
D. D. S.,
Madison, Wis.

"I have given 'DENTACURA' a thorough trial in my office. In a case of PYORRHOEA ALVEOLARIS it gave markedly beneficial results. It apparently possesses all the requisites of a perfect toilet preparation for the teeth and mouth.

From
J. ROSS HARDY, D. D. S.,
88 Boylston St.,
Boston, Mass.

A PANACEA
FOR SORE,
BLEEDING AND
SPONGY GUMS

"From the experience I have had with 'DENTACURA,' I can heartily recommend it as a means of healing and hardening diseased and spongy gums. If properly used, I consider it most helpful in cases of pyorrhoea."

From Dr. HAYES A CLEMENT,
Dentist
1629 Walnut St., Philadelphia, Pa.
"TO ME 'DENTACURA' IS A VERY SATISFACTORY TOOTH PASTE."

Dentacura
TRADE MARK

is absolutely destructive to bacterial existence. It prevents the development of micro-organisms in the mouth, and destroys the noxious principles of putrefaction and decay, and THE CAUSE of caries, stomatitis, and other diseases pathognomonic of bacteria infection.

Dentacura
TRADE MARK

ARRESTS CARIES OF THE TEETH,
HARDENS AND POLISHES THE ENAMEL,
REDUCES INFLAMMATION,
ERADICATES PUS,
HEALS AND HARDENS THE GUMS,
TIGHTENS LOOSENERED TEETH,
BANISHES PAIN,
AND MAINTAINS THE PERFECT HYGIENE OF THE MOUTH, TEETH AND GUMS.

Dentacura
TRADE MARK

is put up in large tubes
and sold to the
Dental Profession at
\$3.00 per dozen tubes,
net cash.

A SPECIAL OFFER FOR DECEMBER ONLY

In order to afford
Dentists a chance to
demonstrate
for themselves the
virtues of

Dentacura
TRADE MARK

we will, on receipt of
TEN DOLLARS,
express to any address
FOUR DOZEN LARGE (35c.)
TUBES and
ONE GROSS SAMPLE TUBES
enclosed with literature
in packages
BEARING DENTIST'S NAME,
for free distribution
to patients
(a most acceptable gift).
Address all communications

DENTACURA COMPANY
NEWARK, N. J.

TESTIMONIALS IN RE

Dentacura
TRADE MARK

CONTINUED

From
JOHN G. BROUGHTON,
M. D., D. D. S.,
28 W. 39th St., New York.

DESERVING
OF HIGH
COMMENDATION

"After continued use of 'DENTACURA,' I am glad to endorse it as most efficacious in its cleansing, healing, and prophylactic properties. It is a most excellent preparation and deserving of high commendation."

AN IDEAL
DENTIFRICE

From
Dr. FRANK G. GREGORY,
Dentist,
Newark, N. J.

"I can most heartily and conscientiously endorse 'DENTACURA' as an ideal dentifrice. It cleanses and preserves the teeth, heals and hardens the gums, and maintains the hygiene of the mouth better than any other preparation with which I am acquainted."

From M. W. PRAY, D. D. S.,
Boston, Mass.

MEETS ALL THE
REQUIREMENTS
OF AN IDEAL
PROPHYLACTIC

"I have thoroughly tested 'DENTACURA,' personally and in my practice, and find all the requirements of an ideal prophylactic detergent are fully realized in it.

The manufacturers deserve the greatest encouragement from the profession."

A MOST
DELIGHTFUL
ARTICLE

From
W. E. PINKHAM, D. D. S.,
Montclair, N. J.
(Late of 5th Ave., New York.)

"'DENTACURA' is an ideal dentifrice, possessing rare antiseptic, disinfecting and deodorant properties, as well as GREAT CLEANSING, HEALING and PRESERVING POWER.

I find it an article eminently suitable for the prophylactic and hygienic treatment of the teeth, mouth and gums, and a most delightful adjunct to the dental toilet of my patients.

The results produced by its continued use are wonderful, and the only recommendation it needs."

From
C. E. PERKINS, D. M. D.,
Brockton, Mass.

ALL IT CLAIMS
TO BE

"After using 'DENTACURA' I find it does all that is claimed for it. It is the best dentifrice I have ever used, and patients to whom I have given it, tell me that it is the finest they have ever used and come to me for more."



German Fused Oxide

The Best Cement
For Setting Crowns

The glue-like adhesiveness and ease of manipulation that characterize this celebrated German Fused Oxide, render its superiority, for attaching crowns, unquestionable. It is smooth, very easily worked, and does not crystallize.

German Fused Oxide is furnished in two-bottle packages, with choice of either yellow or grey powder, at the price of One Dollar.



Best
for
Filling
Teeth

The best cement for filling teeth. It is very adhesive and seals the tubuli against bacteria-laden secretions. It practically becomes a part of the tooth. Its thorough insolubility prevents its dissolution by the secretions of the mouth; and it exhibits such a remarkable degree of hardness that it has been said to compare favorably to tooth substance itself. Being mixed thoroughly with its peculiar porcelain-like paste, it gives the hardest and most durable plug.

The "Plastic Porcelain" Cement is sold in full size packages (containing two bottles of powder and one bottle of paste) for \$2.00. It is also sold in packages at \$1.50, and a sample package can be had for \$1.00.

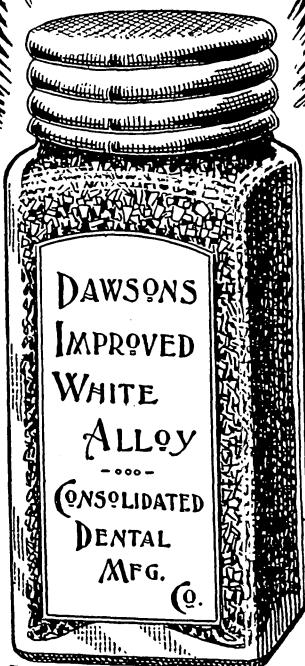
FOR THE PAST QUARTER OF A CENTURY
THE LEADING PLASTIC FILLING MATERIAL

NEAREST
APPROACH
TO TOOTH
COLOR

FOUR
DOLLARS
PER
TROY
OUNCE

EASILY
MANIPULATED

EACH PACKAGE
CONTAINING THE
GENUINE ALLOY
PERSONALLY
PREPARED BY
DR. DAWSON
BEARS THE
FACSIMILE SIGNATURE
Oliver Dawson



DOES NOT
DISCOLOR
THE TOOTH

OUNCE
AND
HALF OUNCE
PACKAGES

REMAINS
SMOOTH
AND HARD

To any dentist sending us One Dollar, we will forward by return mail a trial package of Dr. Dawson's Improved White Alloy, containing one-quarter ounce. We offer this in order that those of the profession who have not yet taken opportunity to use this very superior plastic filling material may be convinced of its truly remarkable qualities.

Consolidated Dental Manufacturing Company,
New York, Boston, Philadelphia, Brooklyn, Chicago, Atlanta, New Orleans.

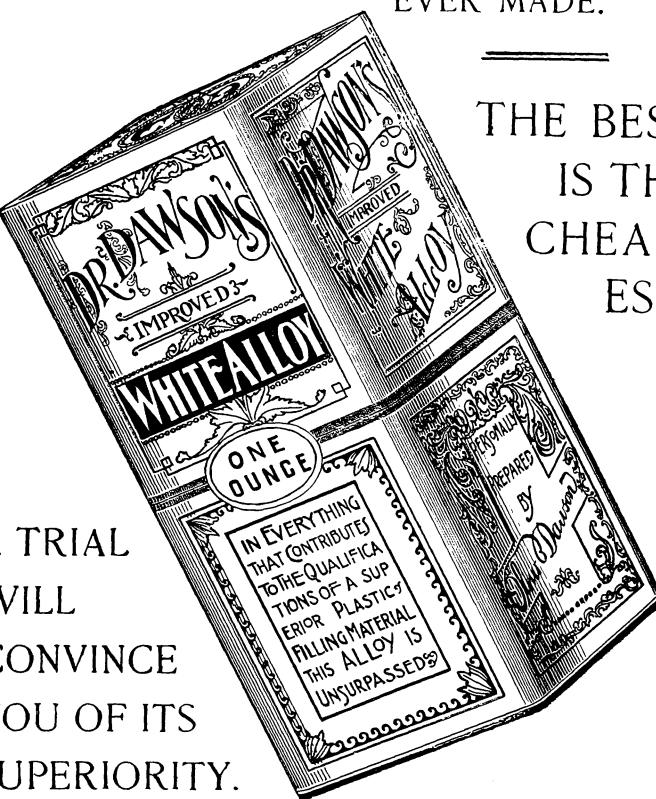
THIS IS A PICTURE OF THE BOX
THAT CONTAINS THE :::::

BEST WHITE ALLOY

EVER MADE.

THE BEST
IS THE
CHEAP-
EST.

A TRIAL
WILL
CONVINCE
YOU OF ITS
SUPERIORITY.



BECAUSE DAWSON'S IMPROVED WHITE ALLOY
IS HIGHER IN PRICE, SOME DEALERS DON'T
SELL IT. IT ALWAYS PAYS TO USE THE BEST.

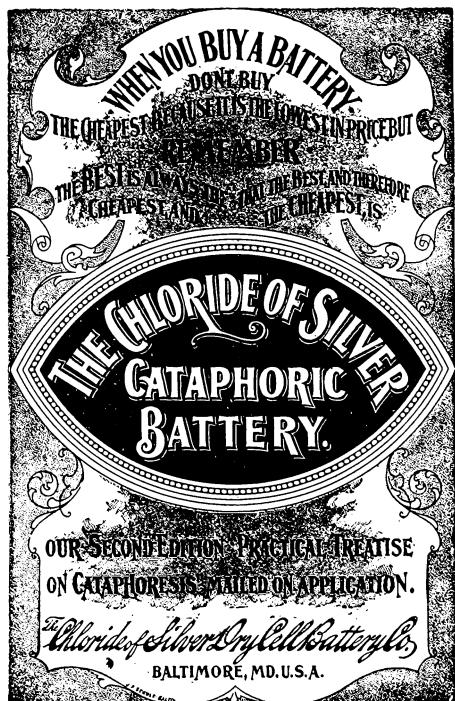
REFUSE ALL SUBSTITUTES.

A New Era of Pulp Capping and Root Filling

Oxy-Pheno-Banum is an antiseptic, insoluble, non-conductive preparation for filling roots and capping exposed pulps and deeply decayed cavities.

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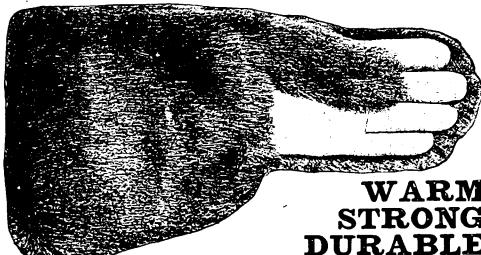
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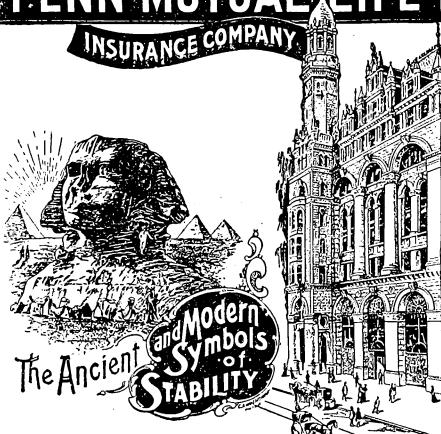
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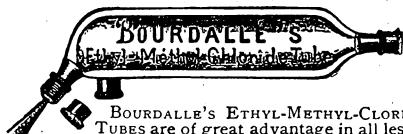
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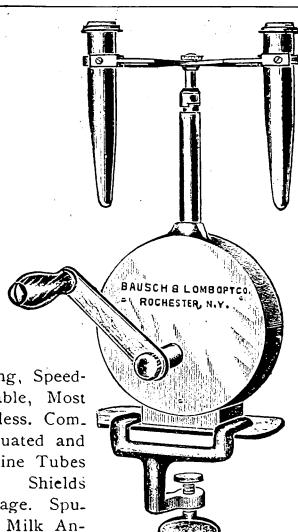
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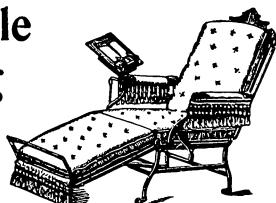
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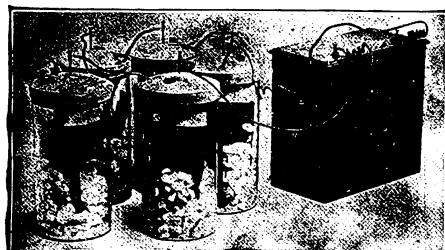
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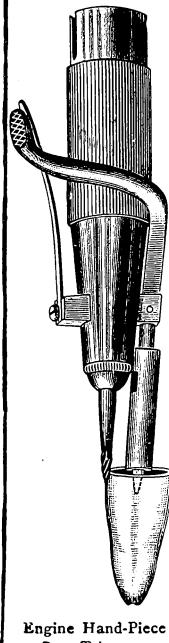
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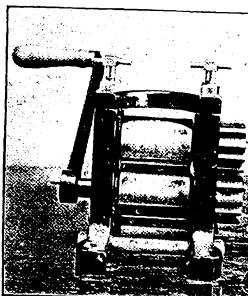
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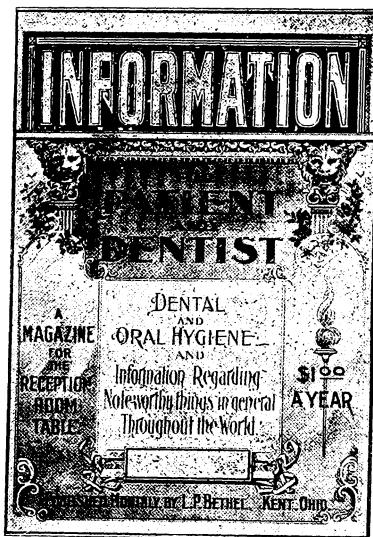
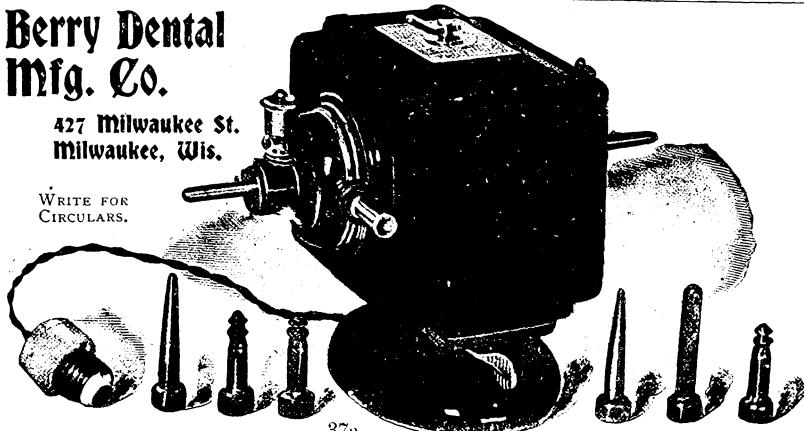
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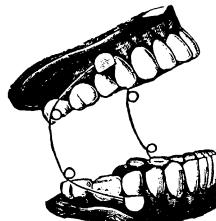
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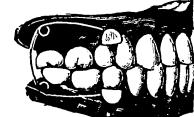
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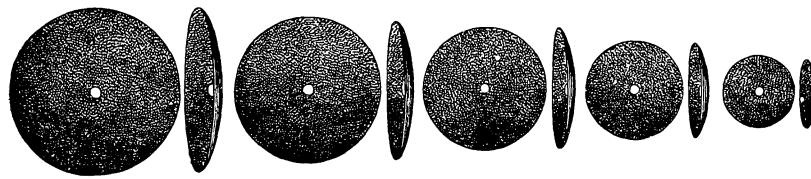
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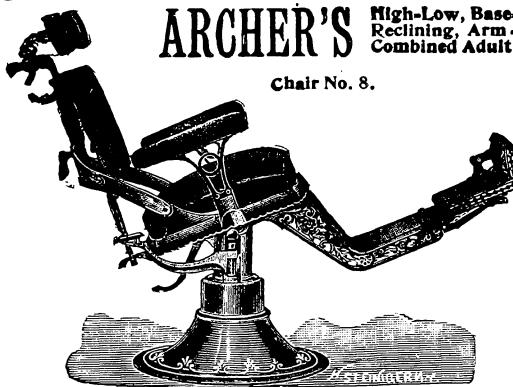
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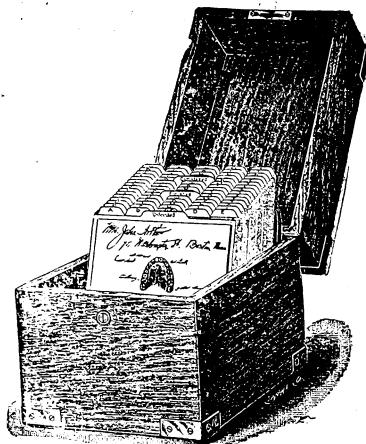
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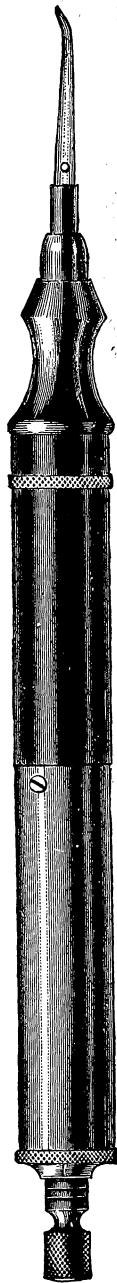
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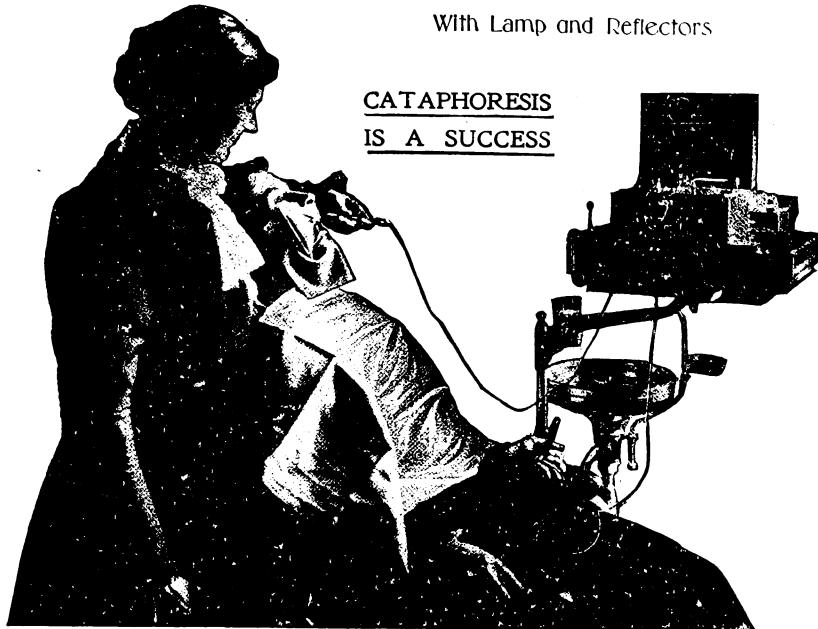
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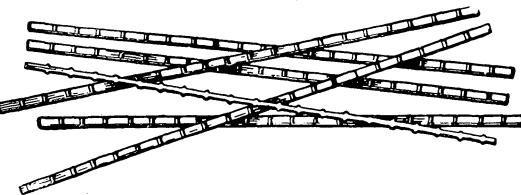
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Dow Portable Electric Assistant Co., (Incorporated)

218 Tremont St., (Room 510) BOSTON, Mass.

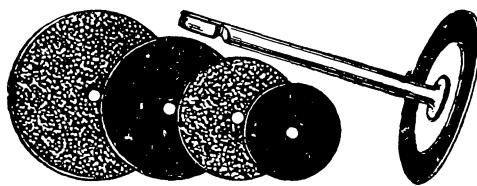
HALL'S WHITE METAL BARS

for strengthening rubber plates have been improved by the addition of cross ribs which prevents the possibility of the bars drawing through the rubber if the plate should crack in wearing. This improvement makes the *nicking* of the bar with a knife unnecessary. A valuable improvement to the busy dentist.



Price per box, 75 cents

HALL'S CARBORUNDUM RUBBER DISKS



are made thin and flexible, about the same thickness as paper disks, but firmer and more durable, having hard rubber as a base; the grit used on the abrasive side of the disk is the justly celebrated Carborundum, remarkable for its keen and rapid cutting qualities. This grit is securely incorporated with the hard rubber on one side, leaving the opposite smooth, on which is placed the metal washer as a reinforcement to the disk. Made in three sizes and three grits. Send 2-cent stamp for sample.

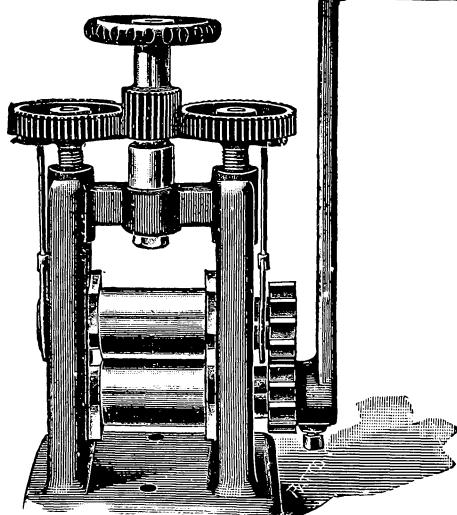
Price per package, 40 cents

W. R. HALL & SON,

115 N. 17th Street,
PHILADELPHIA, PA.

The Crown Dental Rolling Mill

PATENT APPLIED FOR.



The rolls are 2-inch diameter by 3-inch long, perfectly hardened, ground and polished. Cut pinions of steel, geared pressure screws, with an improved lifting device without springs. The rolls can be quickly removed from the frame. Weight 45 pounds.

We would be pleased to send price and further description of this mill, also other specialties which are manufactured only by

W. W. Oliver

1487-1489 Niagara Street
Buffalo, N. Y.

FOR SALE AT THE LEADING DENTAL DEPOTS

GOLD SEAMLESS CONTOUR CROWNS.

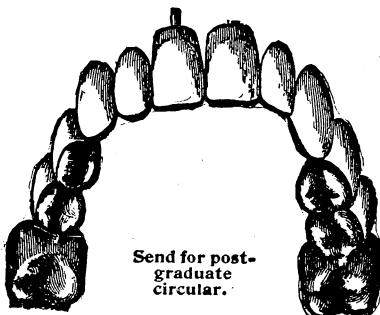
With Solid Cusp.

No More Wearing Through!

A Crown Complete and Ready to Set!



The Cusp on our Bridge-work are not made of a thin piece of gold, but are heavy and solid.



Send for post-graduate circular.



41-45 ELWOOD BLDG.

ROCHESTER, N. Y.

No More Soldering!

WE have been manufacturing Crowns and Bridge-work for several years, and have been making progress in the work slowly indeed at first, but now our patrons are to be found in every State and Territory in the Union.

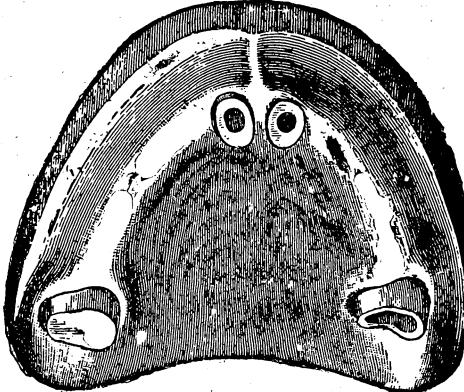
Crown-work.

Our Centrals, Laterals and Cuspids are patterned closely after nature, and are easy to adjust, thereby making them the most perfect of front tooth crowns. They have also a solid cutting edge, and contain more gold than any crown in the market for the price.

In ordering Crowns, send well-defined plaster model with tooth to be crowned marked, and be sure and **measure tooth with wire**, and we will make a perfect fitting crown.

Bridge-work.

We call particular attention to our Bridge-work, which is made in the most perfect and artistic manner.



Oldest established Crown makers in Rochester.
We lead, others follow.

PRICE LIST.

Molars, Centrals, Laterals and Cuspids.....	Former price, \$3.00; now, \$2.25
Bicuspid.....	Former price, 2.50; now, 2.00
Regular Bridge-work, with Gold Cusp, per tooth.....	3.00
Regular Bridge-work, without Gold Cusp, per tooth.....	2.00
Open-faced Crown.....	3.50
Richmond Crown, Gold Tip.....	4.00
Richmond Crown, without Tip.....	3.50
Excelsior Crown Cement, per package.....	1.00
Excelsior Anesthetic.....	per oz., \$1.00; 10 ozs. 6.00
Excelsior Porcelain-faced Gold Crowns.....	5.00
Swedging Gold and Aluminum Plates.....	3.50

For extra long tooth an additional proportionate price is charged.

When the Money does not accompany Order, Goods will be sent C. O. D.

Send All Orders to J. L. WELLER, 41-45 Elwood Bldg., Rochester, N. Y.

Write for large circular with instructions.

The Marshall

Adjustable Angle Pneumatic Mallet

This Adjustable Angular Mallet will condense the gold AT AN ANGLE OF NINETY DEGREES or any fraction thereof as effectively as under a direct blow.

At its joint the mechanism is on the principle of two billiard balls which are held in a constant fixed relationship. This novel improvement in the Pneumatic Mallet furnishes just that little more REACH AROUND THE CORNER and makes the posterior contour in Bicuspid and Molars a work of ease.

REMEMBER, you can set the point at ANY ANGLE you desire, and THE BLOW IS ALWAYS THE SAME, at every position of the head or point.

SIMPLICITY IN CONSTRUCTION is one of the Marshall Mallet's strong claims to popularity. The power to operate the Mallet is furnished by a pump or vibrator fastened to the wall and run by a cord from the motor. Or it can be attached direct to the motor shaft if operator prefers. There is also a CUT-OFF which may be fastened to a bracket table or any convenient place. By placing the Mallet on the CUT-OFF the motor is INSTANTLY STOPPED.

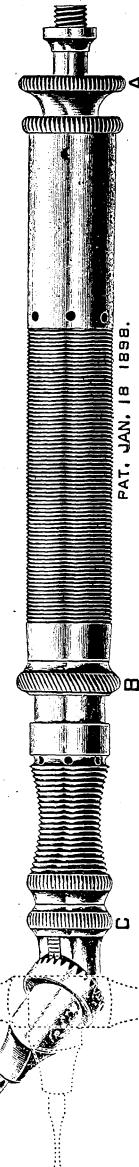
THE WEIGHT OF THE BLOW can be regulated by turning the collar marked A.

THE BLOW IS STOPPED by pushing forward collar on front of the Mallet marked B.

The Pneumatic Mallet, as evolved during many years of experiment and improvement, is to-day gaining more advocates than all others, being

SIMPLE IN CONSTRUCTION
POSITIVE IN BLOW
PERFECTLY ADJUSTABLE
CONSTANTLY UNDER CONTROL

N. B.—Each and every one of the Marshall Adjustable Angle Pneumatic Mallets carries with it the maker's COMPREHENSIVE GUARANTEE.

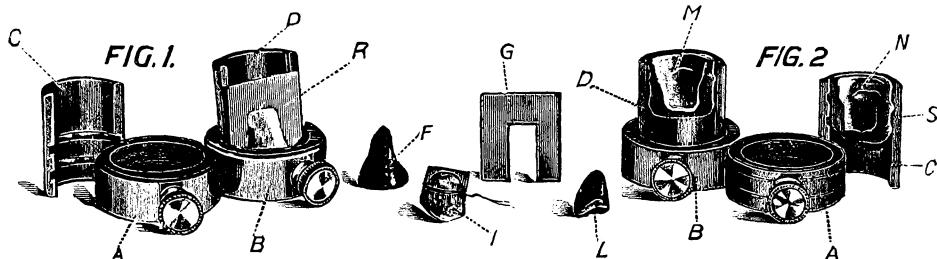


Send for descriptive circular

F. L. MARSHALL & COMPANY

No. 74 Boylston Street, Boston, Mass.

Webster Crown Machine



For making gold **Centrals, Laterals and Cuspids**



Dentists! Why pay \$3.50 for ill fitting gold crowns when
you can make them *perfectly yourself* in twenty minutes
at the average cost of \$1.00

Scientific

*Within the reach of all
Price \$5.00 prepaid
Write for particulars*

Practical

W. Lloyd Webster

256 West 34th St.

NEW YORK

THE FOUR SEASONS

Have no effect on the behavior of
the improved

Ames' Metalloid Cement

It has all the desirable working qualities, and in
CRUSHING MACHINE tests, made by disinterested
parties, has been found to be the strongest
cement for crown setting on the market.

THREE COLORS—white, pearl-gray and gray.

One color package, \$1.00.

We have also

Oxy-Phosphate of
Copper.

W. V-B. AMES,

36 Washington St.,
CHICAGO.

Hammond's Fused Oxide Cement

For Permanent Fillings, Crown and Bridge Work



This cement, after years of use by the ablest dentists, has proved to be one of the hardest, most resistent and durable cements ever produced. The acid is of such a permanent character that it does not crystallize in any clime under any natural conditions. The combination of liquid and powder makes a true chemical union, thereby producing a cement of flint-like hardness and infinite permanency.

Dr. A. L. Swift, 161 West 71st street, New York City, says of it:

"I have used 'Hammond's Fused Oxide Cement' for several years, and have not a failure to record against it. Recently I have seen fillings I put in the mouth from the first box purchased and found them sound and perfect as when put in."

You can make no mistake in using this cement, as its results will meet the critical expectations and most exacting requirements of the dentist.

PRICE PER PACKAGE, \$1.50. 6 PACKAGES, \$8.00. 12 PACKAGES, \$15.00.

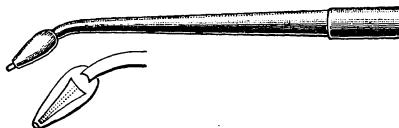
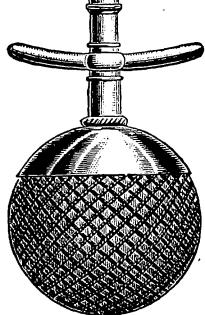
Manufactured by **JOHN F. HAMMOND**, 25 East 125th St., NEW YORK.

SPOONER'S QUICK FILLING SYRINGE



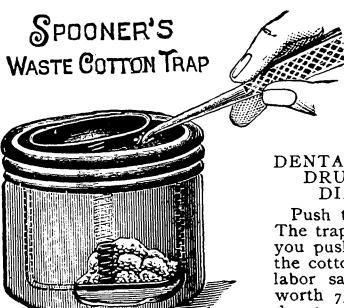
In previous issues we have claimed that this Syringe fills in one-third of the time of ordinary Syringes. We now announce that it will (due to improvements) fill in **ONE-FIFTH OF THE TIME**. U. S. bonds scrambled for at 3 per cent. This investment will pay you 600 per cent. **TEN** seconds saved each time you fill with water. Figure if you would save the cost in time, in two months. Is not this 600 per cent per annum?

\$1.50 is all it costs.



You have a Syringe already? All right. Here is a point that can be attached to a Moffatt or the piston variety. Every dentist is mechanic enough to cut off to suit, and telescope this end on. Done in a moment with a saw. Smear a little cement on the joint, and you have a neat job.

It costs only **60 cents**.



DENTAL DRUDGERY DIMINISHED.

Push the pliers in. The trap pulls, while you push. Strips off the cotton. Is not a labor saver like this worth 75 cents. All depots.

All done with one hand, and will save cost in a week. Top unscrews, so it can be washed. Price, **75 cents**.

Any of Spoonser's specialties will be sent postpaid with the privilege to return and get your money back after a week, if not satisfied. Send to your dealer, or you can get them from Consolidated Dental Mfg. Co., New York, or of Lee S. Smith & Son, Pittsburg, Pa., on the same terms.



SPOONER'S DENTAL CEMENT MIXING PAD . . .

Throw away your old piece of glass. It has to be cleaned each time. This slab has a hard surface impervious. Mix your cement or treatment, tear off the leaf and you have a fine, clean sheet for next mix. No trouble or fuss to it. Over 100 washings and scrapings, and DRUDGERY saved. Precisely the same result minus the labor. **Price, 25 cents.**

Will send a partial pad for 10 cents in stamps.

F. B. SPOONER, D.D.S., 12 Cambridge Place, Brooklyn, N. Y.

THE BEST SYRINGE IN THE WORLD.

AND THE



BEST LOCAL ANESTHETIC IN THE WORLD

HAYCOCK'S EUCAINE TABLETS

For the Painless Extraction of Teeth

DIRECTIONS: To make an ounce of the Local put ten (10) Tablets in an ounce of Distilled Water—in one minute you have it; however, it is always preferable to use heat—the effect is wonderful.

PRICE OF HAYCOCK'S SYRINGE AND EUCAINE TABLETS

Vial of 25 with Syringe	\$3.50	Syringe without Tablets	\$3.00
Case of 100 Tablets	1.50	Single Vial of 25 Tablets50

Order of any Dental Depot, and in case they have not got either Syringe or Tablets, send direct to

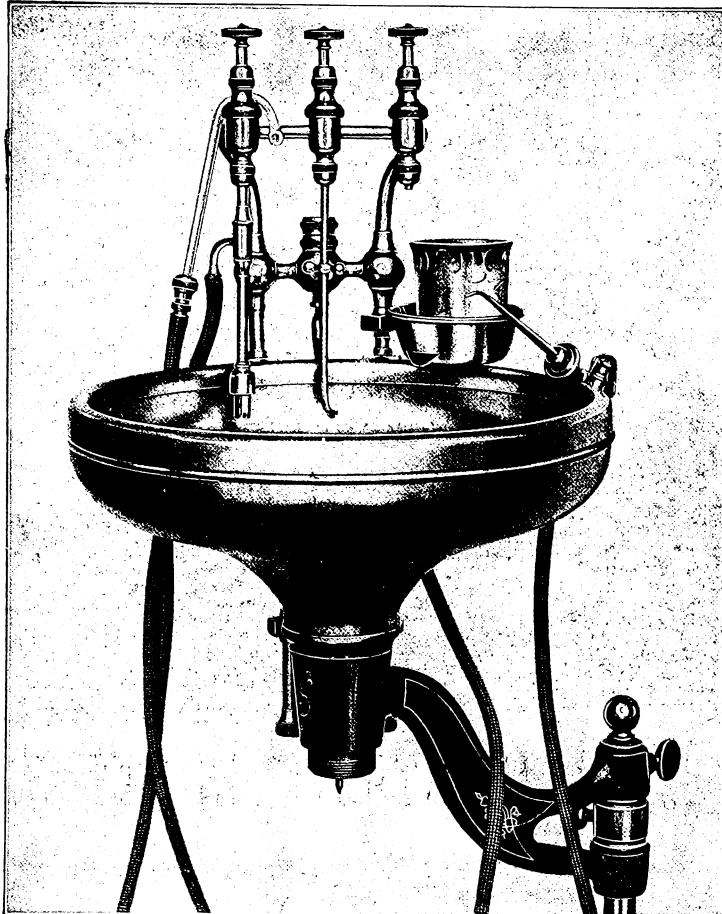
CHAS. J. TAGLIABUE, Sole Maker

51-53 FULTON STREET, NEW YORK

With much appreciation of former liberal patronage, we have pleasure in the introduction of our

HOT AND COLD WATER SPITTOON

for which we anticipate a large demand.



PRICE, \$100.00. 10 per cent. Discount for Cash.

With this spittoon Hot and Cold water can be used, which will be found a valuable acquisition to a dental office. The valves are constructed so that Hot water can be drawn into drinking glass or used in the syringe, and the temperature of the water can be regulated by simply turning one of the valves.

It has all the advantages of the Cold water spittoon with this addition. For further particulars address

A. C. CLARK & CO.

Manufacturers

CLARK FOUNTAIN SPITTOON
CLARK DENTAL ENGINE

908-909 Masonic Temple,
CHICAGO.

THE CLARK FOUNTAIN is the result of a long series of experiments combined with the finest workmanship and materials fitted together and tested before leaving our factory.

THE CLARK FOUNTAIN has achieved an international reputation as the best fountain spittoon.

THERE IS but one best and that is the CLARK. We would not make a better spittoon if we sold them for \$1,000.00 each.

THERE CAN be nothing more simple or practical, nothing more satisfactory than a CLARK. It will not overflow, nor gurgle or splash, or allow the water to back up in the bowl. The air space between the bowls effectually prevents that.

BY MEANS of the inner bowl revolving, a small amount of water from the supply nozzle forms a water bed, completely covering the inner bowl. Nothing in centre to obstruct waste.

The cut on opposite page shows the steel pin (under the bracket) which supports the inner bowl and to which the inner bowl is attached. This revolves on a hardened steel plate, NO RESISTANCE, NOTHING TO RATTLE OR WEAR OUT, NOTHING MORE SIMPLE.

We have all makes of fountain spittoons (second-hand) that we have taken in trade and which we sell from \$10.00 to \$40.00.

THE CLARK FOUNTAIN SPITTOON

CASH	TIME PAYMENTS
	\$65.00
\$58.50	\$15.00 C. O. D.
	5.00 per month

A. C. CLARK & CO.

MANUFACTURERS
CLARK FOUNTAIN SPITTOON
CLARK DENTAL ENGINE

908-909 Masonic Temple
CHICAGO

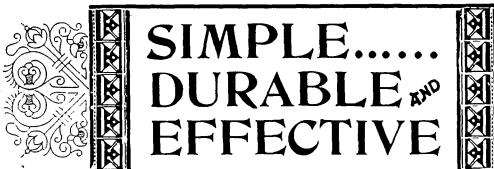
\$40

\$40

A BLAIR FOUNTAIN SPITTOON

FREE OF CHARGE

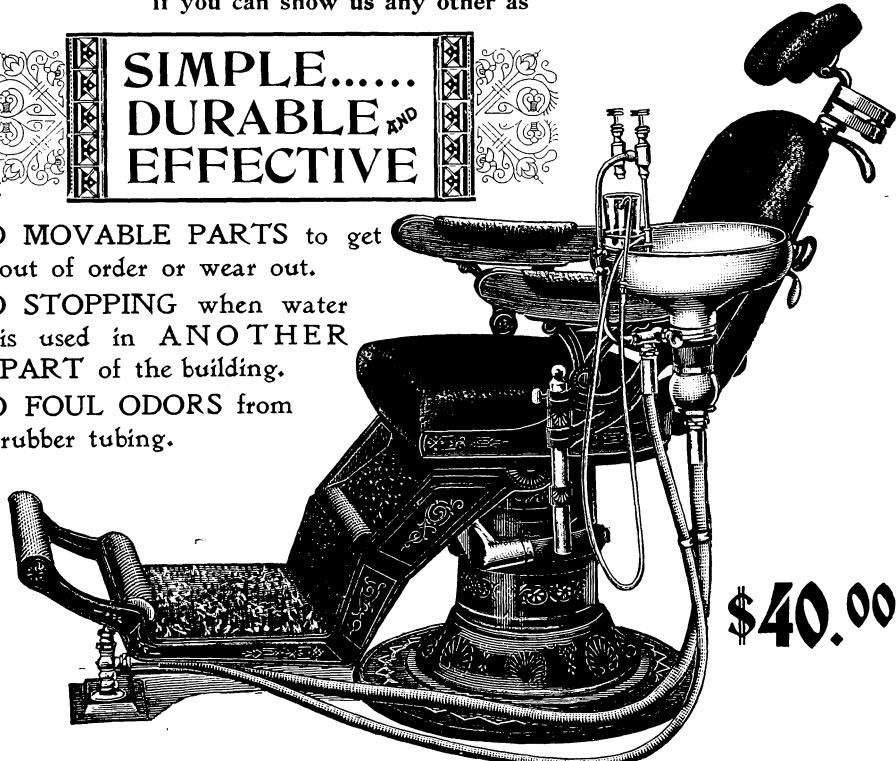
If you can show us any other as

FULL NICKEL PLATED
OR PORCELAIN COVERED BOWL

NO MOVABLE PARTS to get out of order or wear out.

NO STOPPING when water is used in ANOTHER PART of the building.

NO FOUL ODORS from rubber tubing.



\$40.00

NO WATER can be THROWN OUT of bowl, no matter how LARGE THE SUPPLY.

NO WOOD OR CONCRETE FLOORS to tear up to place a GAS trap.

NO HISSING, GURGLING or WASTE of water.

NO LOSING OF GOLD SCRAPS, all of which are caught in our combination GOLD AND GAS TRAP.

NO UNSIGHTLY BLOOD CLOTS when extracting, because OUR STRAINER IS REMOVABLE.

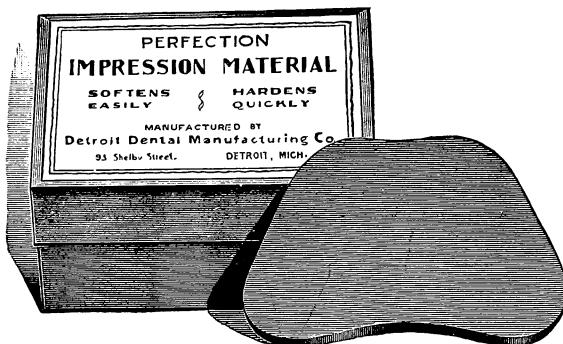
NO REASON WHY you should have long to think, when you can send for our Illustrated Catalogue and SEE not what WE, but what THOSE WHO ARE USING THE BLAIR FOUNTAIN SPITTOON HAVE TO SAY.

Can be attached to Wilkerson, Columbia or Case Chair.

FORTY DOLLARS NET CASH, or
Twenty Dollars CASH and Five
Dollars a month for FIVE months.

The Blair Fountain Spittoon Co.
410 W. Chestnut St., LOUISVILLE, Ky.

Perfection Impression Material



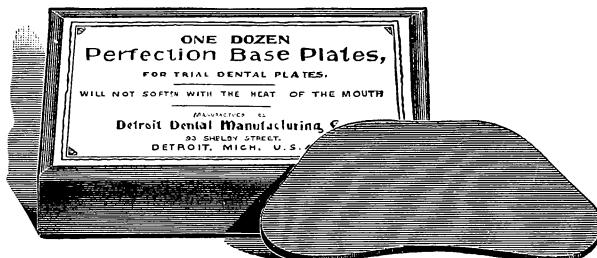
IT IS IMPOSSIBLE to make good work on a poor impression. Very little improvement has been made in impression materials for years. Perfection Impression Material is an entirely new production in this line, with which most excellent results can be obtained.

It softens in hot water in which the hand can be held without burning. Is made perfectly soft without being so hot as to burn the patient's mouth.

Then again it hardens very quickly in the mouth, and becomes so hard that it will not spring in a few minutes without applying cold water. The range of temperature required to change it from the soft to the hardened state is very small. As it can be used very soft, a very sharp impression can be taken with it. It is made in forms just right shape to fit your tray.

Price, per Box, 50c.

Perfection Base Plate



THIS is a hard base plate which will not soften or change shape in the mouth. It is much more easily fitted to the model than any other hard base on the market. It is almost as easily adapted as base plate wax. It is cut in blocks, right shape to fit the model, both upper and lower. Unless otherwise ordered, each box will contain nine upper and three lower plates.

Price, per Box, 35c.

Cup Mandrels



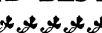
ON THE END OF THE MANDREL is mounted a metal cup, into the center of which a screw is inserted. When a flat rubber disk is mounted on this, it is given a cup shape, and is the best thing ever put into the hands of a dentist for cleaning the teeth.

Price, Mandrel, 25c.; Box, 50 Disks, 25c.

DETROIT DENTAL MANUFACTURING CO.
93 SHELBY STREET, DETROIT, MICH.

Jodo-Formagen-Cement

TRADE MARK REGISTERED NO. 31,458.

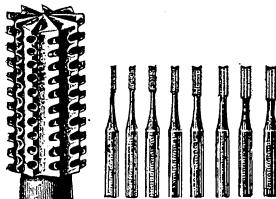
IS THE MOST RECENT AND BEST
PREPARATION FOR THE 

Painless Treatment of Decayed

Pulps and Their Preservation.

IN acute and chronic pulpitis this preparation is astoundingly efficacious. It is in its essential parts a combination of Jodine salts and Formaldehyde on the one part, and Eugenol, Carbolic, Lysol on the other, in form of a quickly hardening cement.

It is a well-known fact that Carbolic acid quickly arrests even the most excruciating pain in decayed teeth, while the Jodine salts and Formaldehyde as quickly neutralise the pus-forming bacteria, especially the genus *Staphylococcus pyogenes aureus*, which according to most recent bacteriological researches, is responsible for Anaerobiosis. The Jodine salts, in addition to drying up secretions, exercise a beneficial effect on granulation without irritating the pulp. Oft repeated trials on patients and frequent bacteriological examinations have proved its astounding effect in pulpitis; in periostes of the roots with slightly indicated irritation, it is necessary to carefully excavate and dry the cavity before using the Cement, and covering and capping with any good cement. Jodo-Formagen-Cement does not adhere to the introductory instruments. In "Jodo-Formagen-Cement," we possess a preparation that entirely does away with Arsenic, etc., in the treatment of pulps.



Prices: Regular Package, \$1.50
Double Package, \$2.50

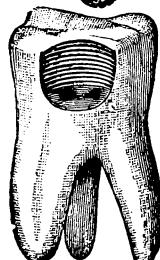
GUSTAV SCHARMAN,
Sole Importer.



ENAMEL FISSURE BURS

Cross-Cut Burs \$2.00 per doz.

Enamel-Fissure Burs \$2.00 per doz.



CROSS CUT BURS

All instruments stamped with this

TRADE ← DAZF → MARK.

GUSTAV SCHARMAN,

1181-1183 Broadway,

Baudouine Building,

NEW YORK.

SOLE U. S. AGENT FOR
E. SIMONIS, BERLIN.
A. MEISINGER, DUSSELDORF.

THE WARNING

YOUR COMPETITORS ARE DOING MORE BUSINESS.

WHY?

BECAUSE THEY HAVE THEIR OFFICES EQUIPPED WITH MODERN APPLIANCES. THEY USE THE

SIMS HYDRAULIC ENGINE

IT IS PERFECT IN CONSTRUCTION, SIMPLE, CHEAP, AND AN ORNAMENT TO ANY WELL APPOINTED DENTAL OFFICE.

SOME GOOD FEATURES—

REVERSES, STARTS AND STOPS INSTANTLY.

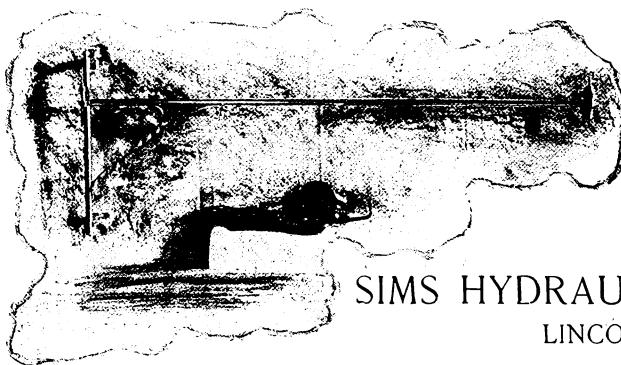
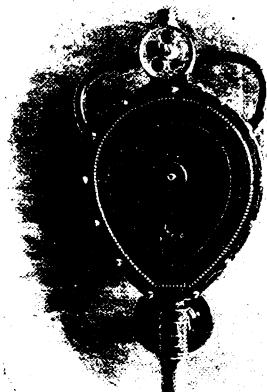
NOISELESS.

NO DIRTY, ANNOYING BATTERIES.
ANY RATE OF SPEED, FROM 100
TO 3,500, BY SIMPLE PRESSURE
OF HEEL OR TOE.

NO COST, OR BUT LITTLE, TO RUN
IT.

BY MEANS OF OUR AUTOMATIC
VALVE AND FOOT-SWITCH THE
ENGINE IS UNDER ABSOLUTE CON-
TROL OF OPERATOR AT ALL TIMES.

THE ORDINARY CABLE (S. S. W.) CAN BE ATTACHED TO OUR BRACKET
AND ENGINE HEAD.



PRICE:

Motor, Bracket, Engine Head
and Foot-Switch,

\$40.00.

SIMS HYDRAULIC ENGINE CO.
LINCOLN, NEB.

Steurer's Plastic Gold (Improved)

This is a chemically pure gold in a plastic state, without admixture of any foreign substance, and has been extensively used by dentists at home and abroad for the past eleven years. In its improved form it does not crumble, but when properly annealed works like wax, and denser fillings can be made by hand pressure than with foil by means of a mallet.

It is a great time saver. It will not "ball," but spreads under the plugger and so adapts itself perfectly to the walls of the cavity. Can be used for contour work and will unite with any pure gold.

It is put up in two styles: Small square pieces, in 1-16 oz. vials; Large square pieces, in $\frac{1}{8}$ oz. boxes.

Do not be imposed upon by imitations, as this is the only "Plastic Gold in the world" that has kept up its reputation for so many years.

Price per Bottle, 1-16, \$2.50.

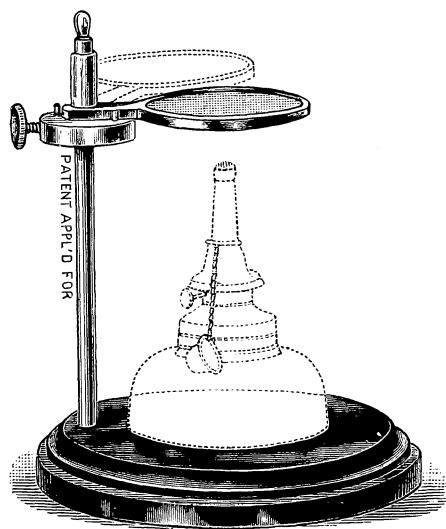
Price per Box, 1-8, . 5.00.

Cash with all orders.



Sold at all Dental Depots

Steurer's Automatic Annealer



You cannot expect your gold to work well unless it is properly annealed.

As ordinarily done, it is mere guess-work, and is as liable to be wrong as right.

It is wrong to anneal over a naked alcohol flame (as is so often done), because it is apt to become contaminated with carbon.

Metal plates get too hot, mica slivers and mixes with the gold. This is all overcome by the use of "Steurer's Automatic Annealer," which always anneals just right, never getting too hot, no matter how long you leave it over the flame. Used with an alcohol lamp.

Simple and strong in construction, and no parts to get out of order.

Price without Lamp, \$2.00

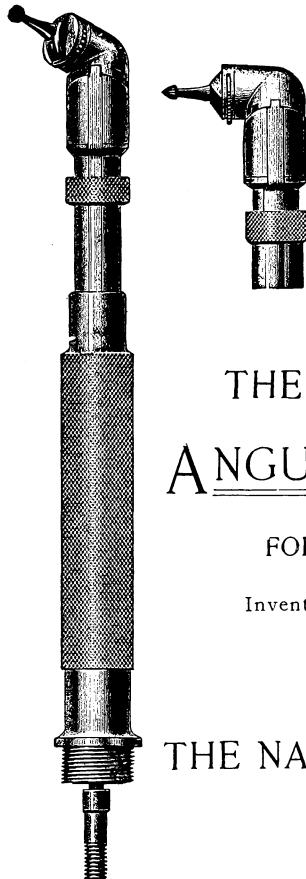
Sold at all Dental Depots, or

Dr. J. A. STEURER,

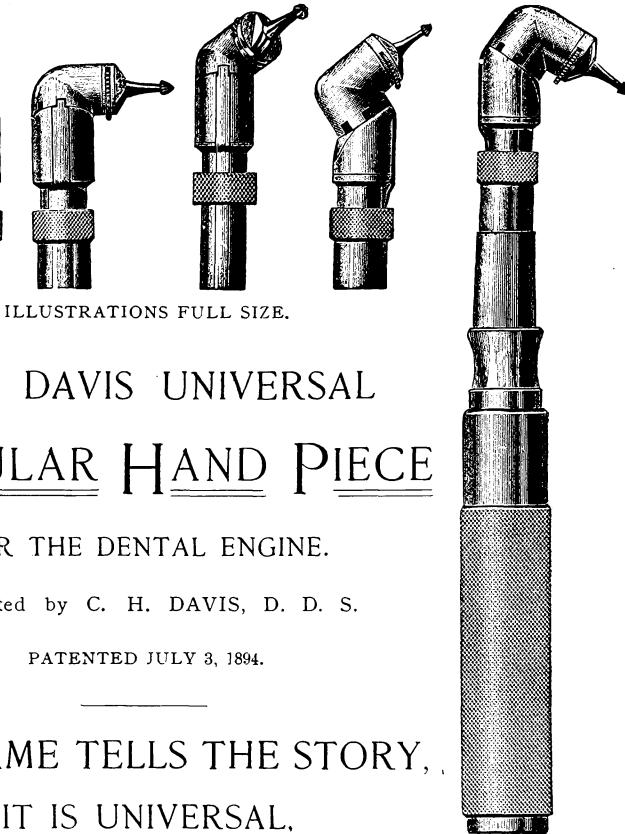
78 West 47th St.

= = = NEW YORK CITY.

No. 1.



No. 2.



ILLUSTRATIONS FULL SIZE.

THE DAVIS UNIVERSAL ANGULAR HAND PIECE

FOR THE DENTAL ENGINE.

Invented by C. H. DAVIS, D. D. S.

PATENTED JULY 3, 1894.

THE NAME TELLS THE STORY,
IT IS UNIVERSAL.

After three years of trial it is known as the most efficient instrument ever invented for the Dental Profession. It is made with the "head" set in the main shaft at an angle of forty-five degrees, which turns completely around, locking it at EIGHT DIFFERENT ANGLES, thus enabling the operator to reach any cavity in the mouth easily and quickly. It is an entire departure from anything on the market.

No. 1 is used with Slip Joint. No. 2 is made to slip over Straight Hand Pieces.

Price, \$10.00. Burs, per dozen, \$1.50 extra.

All Angles sold with at least one dozen Burs.

THE DAVIS SLIP JOINT.

Invented by C. H. DAVIS, D. D. S.

Patented August 6, 1895.

A



B



C



THE MOST PERFECT SLIP JOINT ON THE MARKET.

Price, with two Dogs and Sleeves, (Figs. B and C) \$6.50.

FOR SALE BY CONSOLIDATED DENTAL MFG. CO.

... MATINUM...

A substitute for platinum in post metal for crowns.

For several years efforts have been made to supply a metal to take the place of platinum for post metal. There have been several metals put on the market but they have failed to give entire satisfaction, as they oxidize under heat and in most cases discoloring the cements they are set in, also post breaking off in the root, letting the crown off.

Matinum's specific gravity is less than platinum and costing less will go about two and a half times as far.

Matinum in heavy post can be used in stiffening large pieces of bridge work, also in filling up large bicuspid and molar dummies.

Matinum will not oxidize in the flame of a bunsen burner; comes out the same as platinum.

Matinum will take the highest kt. solder.

Matinum is stiffer than pure platinum.

Put up in two-pennyweight rods, 75 cents per rod.

Shapes round, square and three-cornered.

Gauges (Brown & Sharpe) 16, 17, 18.

W. L. MASON, Manufacturer,
Red Bank, N. J.
P. O. Box 392.

[Mason's Detachable Tooth Co. have tested Matinum for backings, putting the metal to practical use. The results being satisfactory, they have adopted the metal for a cheaper backing—selling the same at 50 cents each.]

Order through your dealer or direct.

FOR SALE BY CONSOLIDATED DENTAL MFG. CO.

DR. CREAGER'S ANESTHETIC PENCIL

FOR THE
PAINLESS EXTRACTION
OF TEETH
AND MINOR
SURGICAL
OPERATIONS

AN ORIGINAL INVENTION
A MODERN NECESSITY



Does away with the pain incident to the tying of ligatures around the necks of teeth, the forcing of crowns under the gums, the excavating of buccal and labial cavities and in the treatment of Pyorrhea Alveolaris.

Its simplicity and manner of application commends particular attention. Nothing to frighten the child or add to the fears of the parent. No sloughing of the gums, or shocking of the whole nervous system. No barbarous needle or hypodermic syringe, the most baneful implements known to the profession. It is simple, a pencil applied directly to the SPOT, without fear or apprehension.

Outfit is securely packed in a wood container, consisting of one point and holder.

PRICE:

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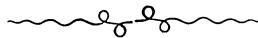
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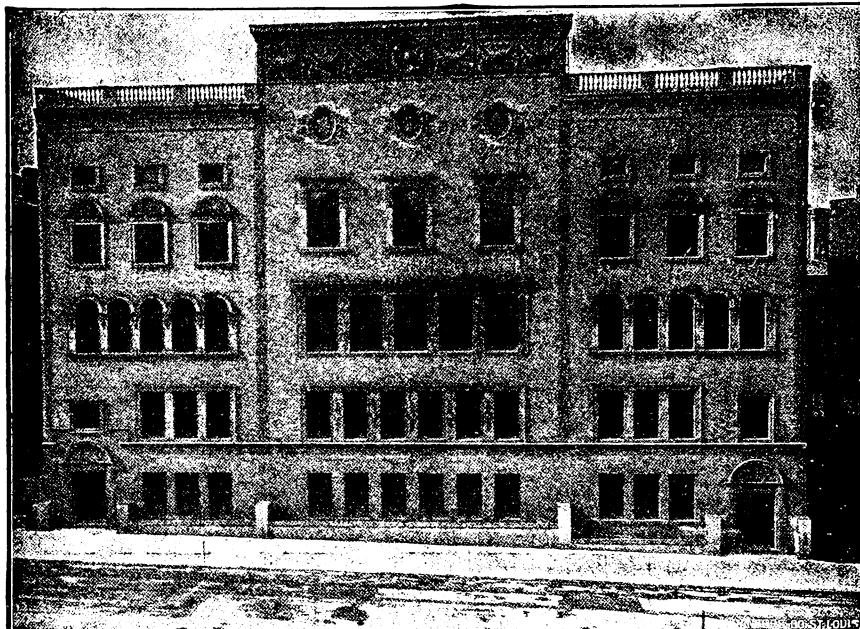
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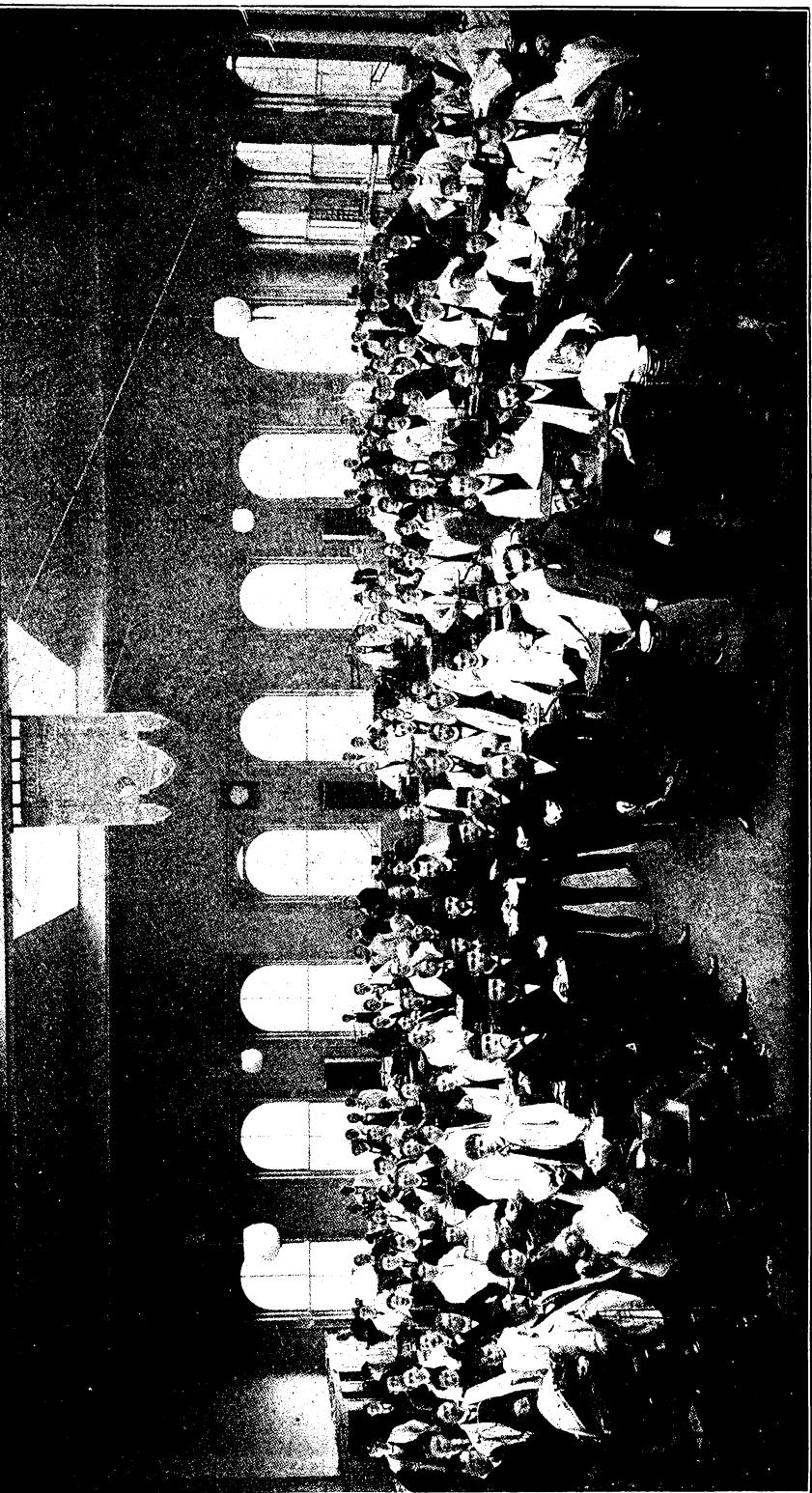
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